

RICHARDSON MULTIFAMILY HOUSING

PERMIT SUBMITTAL PACKAGE

435-431 Shelburne Road

OWNER:

Mitchel Richardson
PO Box 276
South Hero, VT
05486

DEPARTMENT OF
PLANNING & ZONING

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DRAWING LIST

ARCHITECTURAL

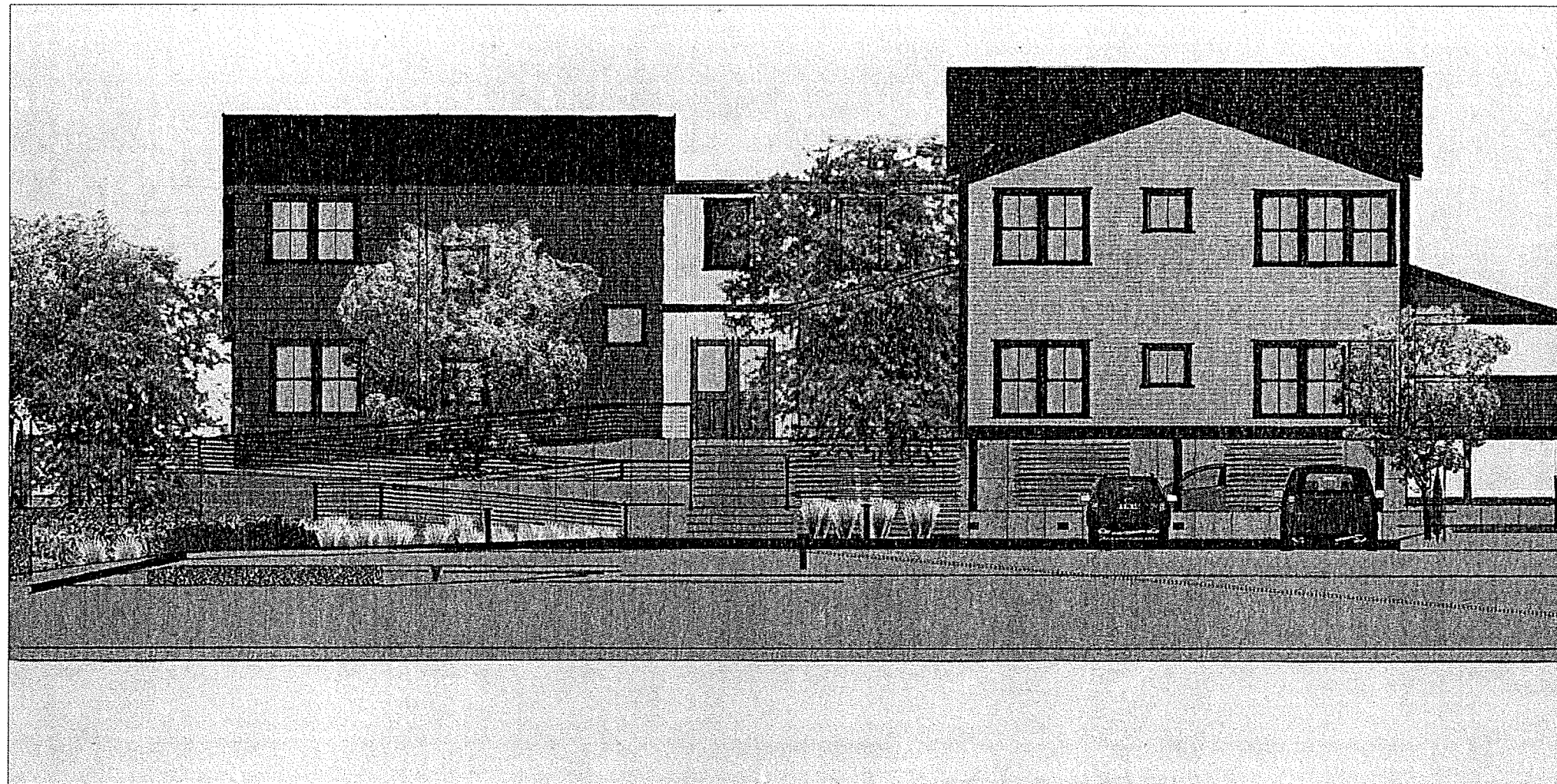
- A1.0 Location Map / Existing Photographs
- A2.0 Elevations
- A2.2 Perspective Views
- A2.3 Elevation Material Selections

CIVIL

- C0.0 Cover Sheet
- C1.0 Existing Conditions and Demolition Plan
- C1.1 Site Plan
- C1.2 Erosion Prevention and Sediment Control Plan
- C3.0 Water Details
- C3.1 Sewer Details
- C3.2 Drainage Details
- C3.3 Site Details
- C3.4 Erosion Prevention and Sediment Control Details

LANDSCAPE

- L100 Site Materials Plan
- L100 Site Materials Plan (Rendered)
- L400 Planting Plan
- L401 Planting Details
- L600 Site Lighting Plan
- L601 Site Lighting Cutsheets



WEST ELEVATION

Architects:
STRUKTUR, PLLC
47 MAPLE STREET, SUITE 304
BURLINGTON, VT 05401
802.922.2632
WWW.STRUKTURVT.COM

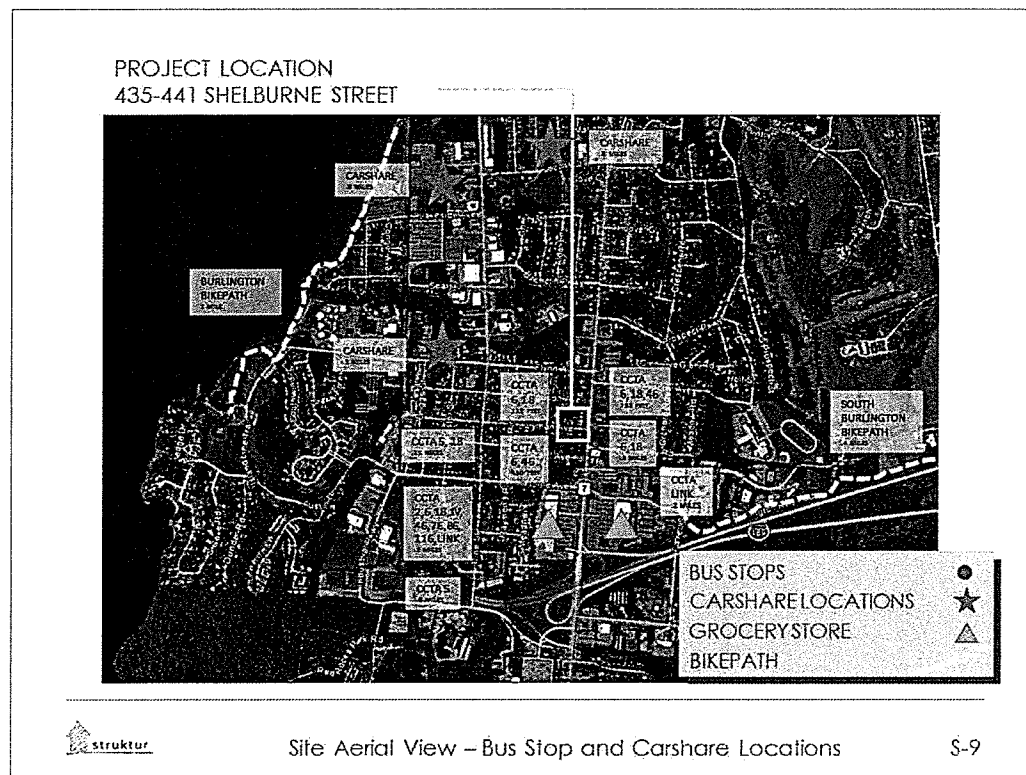
Civil / Structural Engineers:
ENGINEERING VENTURES
208 FLYNN AVE, STE 2A
BURLINGTON, VT 05401
802.863-6225
WWW.ENGINEERINGVENTURES.COM

Landscape Architects:
SE Group
131 CHURCH STREET, STE 204
BURLINGTON, VT 05401
802.862-0098
WWW.SEGROUP.COM

PERMIT SUBMITTAL 8.3 2016
NOT FOR CONSTRUCTION



1 LOCATION MAP



2 TRANSPORTATION/AMENITIES MAP



3 EXISTING PHOTOGRAPHS



SOUTHEAST ELEVATION



SOUTH ELEVATION



SOUTHWEST ELEVATION



WEST ELEVATION



WEST ELEVATION



SOUTHWEST ELEVATION



EAST ELEVATION



NORTHEAST ELEVATION



NORTHWEST ELEVATION



NORTHEAST ELEVATION

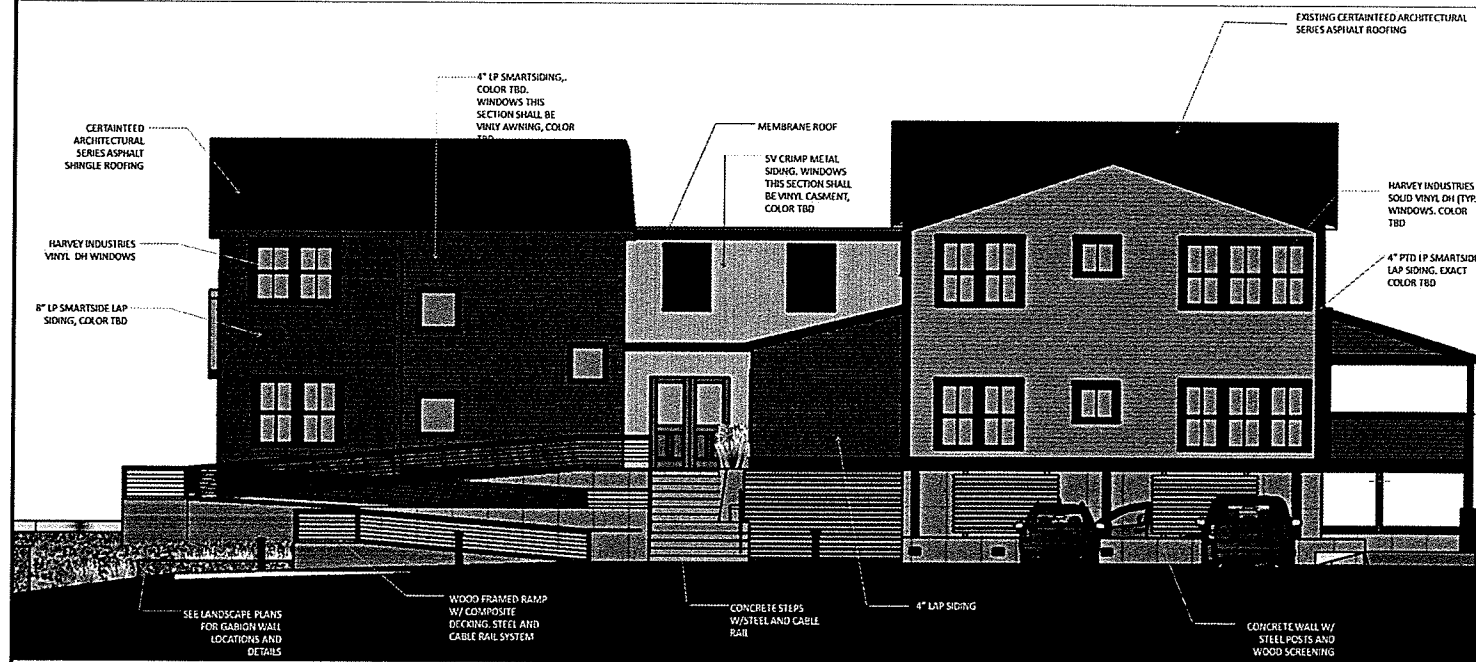
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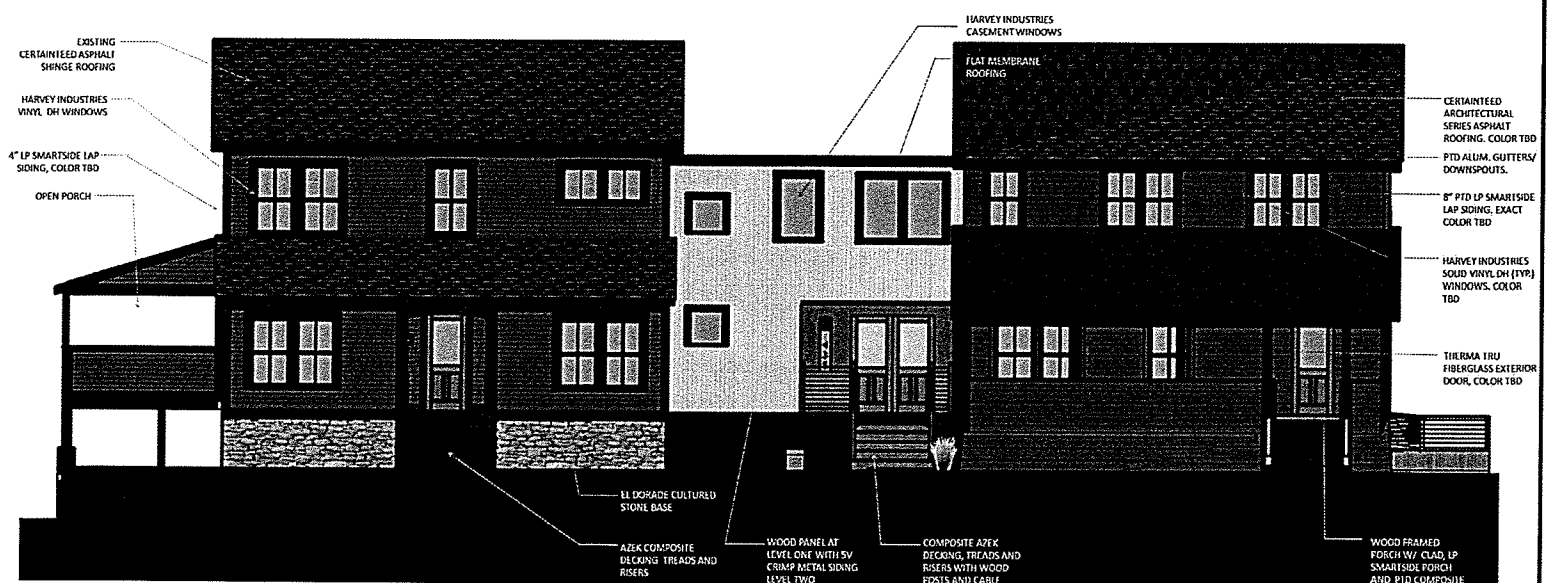
1 NORTH ELEVATION



2 SOUTH ELEVATION



3 WEST ELEVATION



4 EAST ELEVATION

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1 SHELBURNE ROAD PERSPECTIVE



2 WEST ELEVATION



3 WEST ELEVATION



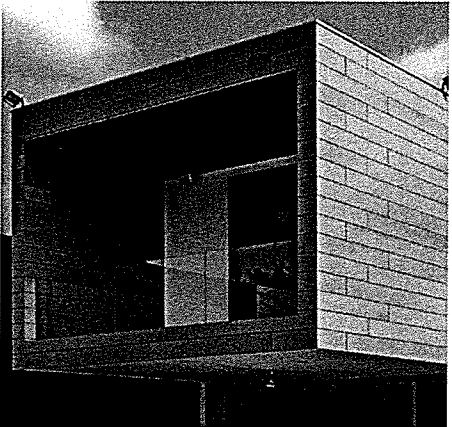
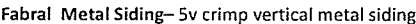
4 EAST ELEVATION



Exterior Finishes				
Siding				
Clapboard A	Smooth 5" exp. Lap siding	LP Smartside	clapboard	Dark Grey-TBD
Clapboard B	Smooth 8" exp Lap siding	LP Smartsiding	clapboard	Dark Blue-TBD
Corrugated Metal	5 v crimp vertical metal siding	Fabral		Light Grey
Cultured Stone	Bluff stone	El Dorado		Woodlands
Wood Panel	panelized wood cladding	Prodex	4x8	Pale
ALTERNATE CLAPBOARD	smooth lap siding	Lifespan Select		
ALTERNATE METAL	2 1/2" corrugated vertical metal siding	Fabral	5	galvalume
Trim				
Cornerboards, Windows, Doors	5/4 smooth Composite Trim	LP Smartsiding		
Decorative Trim, Crown Moulding	3 1/2" + 5 1/2"	Azek		
ALTERNATE TRIM		LP Smartsiding		
Columns/Railings				
Column A	Steel Tube			black
Column B	Built up composite	Azek		ptd
Railings-A	Built up Composite	Azek		ptd
Railings-B	Wood post/cable rail			
Windows and Doors				
Windows	solid vinyl DH/Casements	Harvey Industries		
Entry Doors	Insulated Fiberglass	ThermTru		
Decking				
Deck A	1x5 Composite Decking	Azek		
Deck B	1x5 Composite Decking	Azek		
Ramp-A	P.T frame and deck			
Ramp-B	Stamped Concrete			
Roofing				
pitched	Asphalt Shingles-architect series	Certainteed		
Flat	Membrane roofing			



LP Smartside Lap Siding/Trim— Engineered wood lap siding. Smooth finish. 4" and 8" exposure. Finial colors TBD

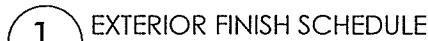


Prodex Wood Panel Cladding

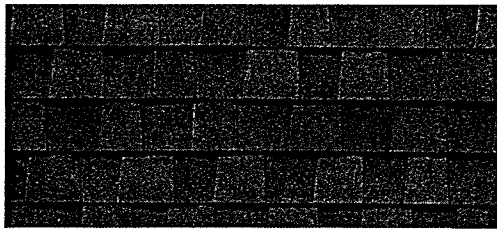


El Dorado - Bluffstone

SIDING / TRIM

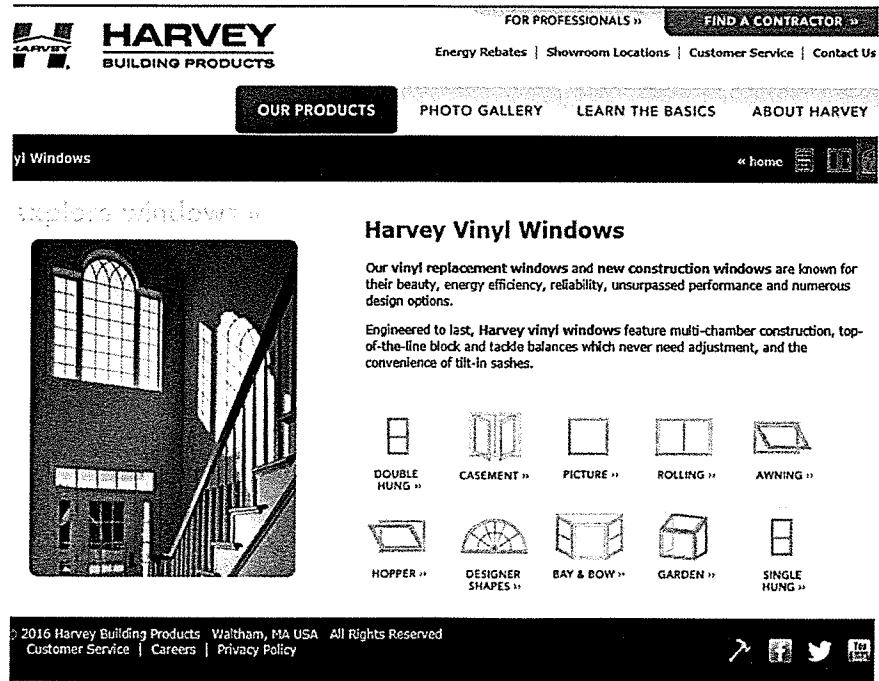


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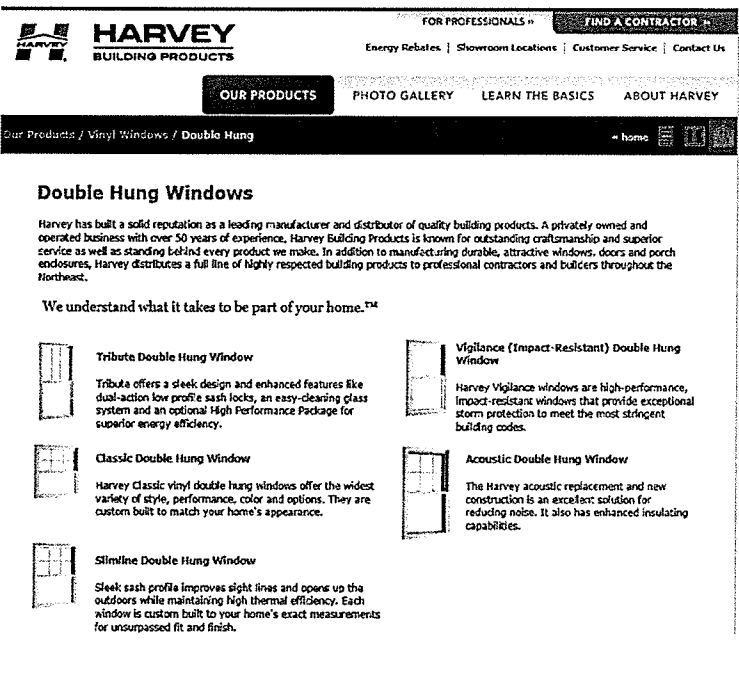


Certainteed - Asphalt Shingles-architect series

ROOFING



WINDOWS



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PLANNING & ZONING

Richardson Properties, LLC
435/441 Shelburne Street,
Burlington, Vermont
Zoning Permit Application

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SURVEY NOTES

1. THIS PLAN IS BASED ON A FIELD SURVEY PERFORMED BY BUTTON PROFESSIONAL LAND SURVEYORS, PC, DATED MARCH, 2015.
2. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITY CONFLICTS. ALL DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT, OWNER, AND ENGINEER. THE CONTRACTOR SHALL CONTACT DIG SAFE A MINIMUM OF 48 HOURS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO ANY CONSTRUCTION.

SITE SOILS

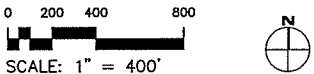
SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
BA	BELGRADE AND ELDRIDGE	B/C
-	UNMAPPED	B (ESTIMATED)

CIVIL DRAWING LIST

SHEET	TITLE
C0.0	COVER SHEET
C1.0	EXISTING CONDITIONS AND DEMOLITION PLAN
C1.1	SITE PLAN
C1.2	EROSION PREVENTION AND SEDIMENT CONTROL PLAN
C3.0	WATER DETAILS
C3.1	SEWER DETAILS
C3.2	DRAINAGE DETAILS
C3.3	SITE DETAILS
C3.4	EROSION PREVENTION AND SEDIMENT CONTROL DETAILS



OVERALL SITE LOCATION



LEGEND

	CLEAN OUT		WATERCOURSE
	MANHOLE		TREE LINE
	CATCH BASIN		FENCE
	STORM MANHOLE		CONTOUR
	TAPPING SLEEVE AND VALVE		SHALE
	CULVERT		STONE WALL
	CONCRETE HEADWALL		EXISTING PROPERTY LINE
	FLARED END SECTION		PROPOSED PROPERTY LINE
	GATE VALVE		EDGE OF PAVEMENT
	HYDRANT		SANITARY SEWER LINE
	WATER SHUT OFF		STORM LINE
	WELL		WATER LINE
	LIGHT POLE		UNDERGROUND ELECTRIC
	UTILITY POWER POLE		OVERHEAD ELECTRIC
	SOIL BORING		UNDERGROUND TELEPHONE
	TEST PIT		GAS LINE
	SIGN		UNDER DRAIN
	SPOT ELEVATION		RIGHT-OF-WAY LINE
	TREE		SETBACK
	SURVEY POINT		

ZONING TABLE

ZONING DISTRICT: RM-MEDIUM DENSITY RESIDENTIAL
PROPOSED USE: DUPLEX AND ABOVE

	REQUIRED/ALLOWED	EXISTING	PROPOSED
LOT SIZE	N/A	19,275 sq(0.44 AC.)	19,275 sq(0.44 AC.)
LOT FRONTAGE	30' MIN	107'	Unch.
LOT COVERAGE			
STANDARD INCLUSIONARY	48%	48.3% (9,315 SF)	47.9% (9,239 SF)
ACCESSORY	10%	(COMBINED)	8.75% (1,687 SF)
PARKING (note 1)	20	12	10
BUILDING HEIGHT	35	29'-2"	29'-2"
FRONT YARD SETBACK (SHELburne ROAD)	23'	25'	Unch.
FRONT YARD SETBACK (LYMAN AVENUE)	11'	9'	9'
SIDE YARD SETBACK	5'	5'	5'

Notes:
1. 50% Parking Waiver required. Refer to Parking Management Plan included in submittal.

SUBJECT PROPERTY:

Parcel ID(S):
057-04-036-000
057-04-888-000

435/441 Shelburne Street,
Burlington , VT 05401

OWNER\APPLICANTS:

Mitchel Richardson
Richardson Properties, LLC
P.O. Box 276
South Hero, VT
05486

CONSULTANTS:

CIVIL ENGINEER

Paul Boisvert, PE/Principal
Engineering Ventures, PC
208 Flynn Ave
Burlington, VT 05401

TOPOGRAPHIC SURVEY
Button Professional Land Surveyors, PC
20 Kimball Avenue, Ste #203
South Burlington, VT 05403

Rev. No.	DRB Submittal	Description	Chgd.
1		09/03/16	

ENGINEERING
VENTURES PC

208 Flynn Avenue, Suite 2A Burlington, VT 05401
Tel: 802.863.6325 - Fax: 802.863.6306
85 Merchant Street, Suite 300A, Lebanon, NH 03766
Tel: 603.442.3333 - Fax: 603.441.9331
www.engineeringventures.com

Client:

Richardson Properties, LLC
P.O. Box 276
South Hero, VT
05486

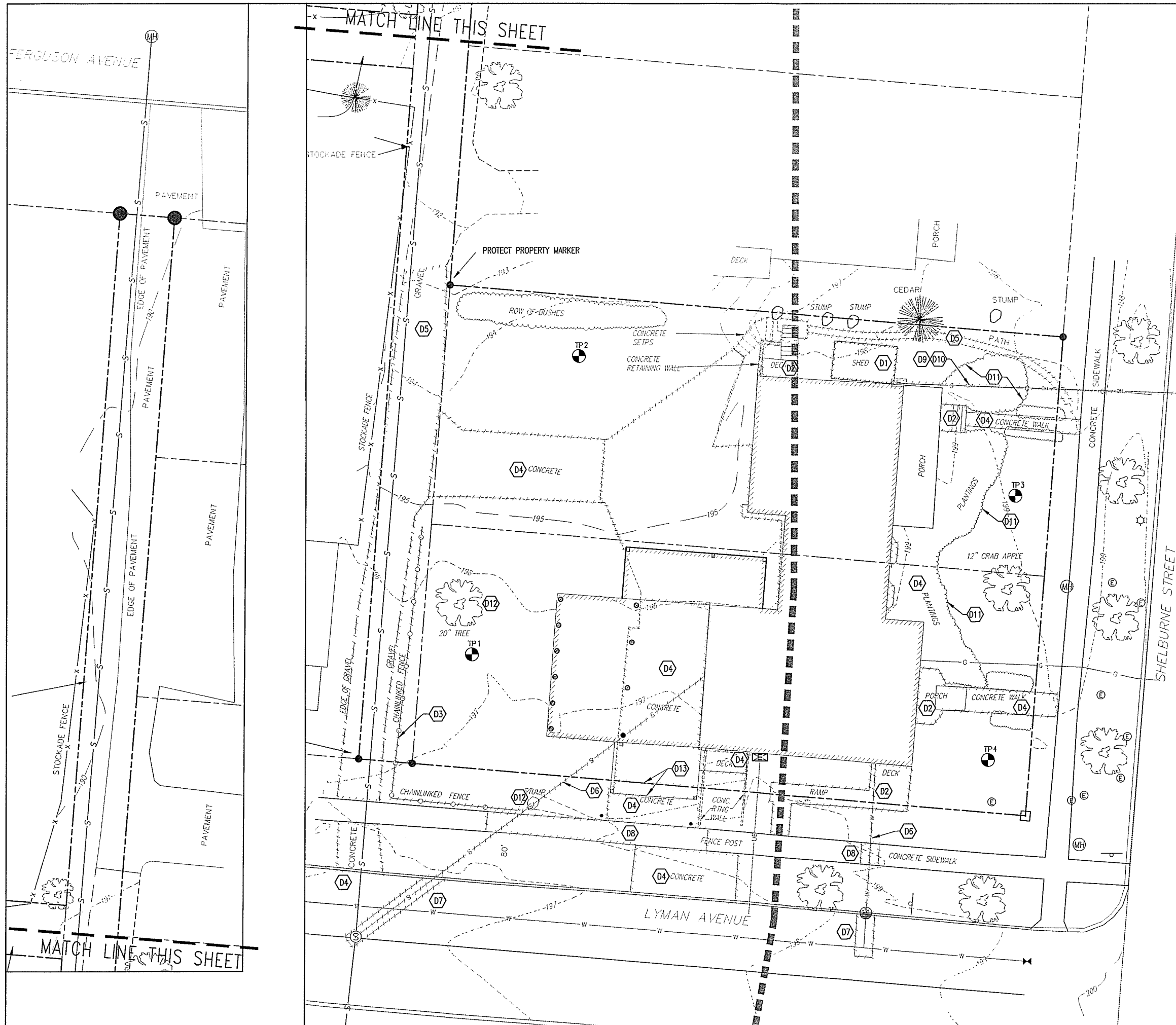
Sheet Title:

Cover Sheet

Project Title:
435/441 Shelburne Street Multi-Family
Burlington, Vermont

Designed By:	PB
Checked By:	-
Drawn By:	WC
Scale:	
Date:	August, 2016

C0.0
EV#16188



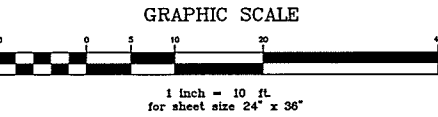
DEMOLITION NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT EDITION OF VTRANS STANDARD SPECIFICATIONS FOR CONSTRUCTION UNLESS OTHERWISE NOTED.
2. NO DEMOLITION SHALL COMMENCE UNTIL A PRECONSTRUCTION MEETING IS HELD WITH THE OWNER AND ALL EROSION PREVENTION AND SEDIMENT CONTROL DEVICES ARE INSTALLED.
3. ALL DEMOLITION ITEMS, UNLESS NOTED BY THE OWNER TO BE STORED OR REUSED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROMPTLY REMOVED FROM THE SITE. EXCESS OR UNSUITABLE SOIL SHALL BE REMOVED FROM THE SITE.
4. ALL ADJACENT FACILITIES AND STRUCTURES NOT INDICATED AS INCLUDED IN THE SCOPE OF WORK SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING OR REPLACING ALL ADJACENT FACILITIES OR STRUCTURES DAMAGED DURING CONSTRUCTION TO PRE-CONSTRUCTION CONDITION OR BETTER.
5. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK AREA FOR THE DURATION OF THE PROJECT.
6. CONTRACTOR SHALL CONTACT DISSAFE IN ACCORDANCE WITH STATE LAW.
7. PRIOR TO DEMOLITION, HAND EXCAVATE ANY UNDERGROUND UTILITIES. NOTIFY THE OWNER IF ANY OTHER UTILITIES NOT NOTED ON THE DRAWINGS ARE FOUND.
8. CARE SHALL BE TAKEN NOT TO DAMAGE OR DISTURB ANY TREES AND SITE LIGHTING NOT INDICATED FOR REMOVAL DURING CONSTRUCTION.
9. PROPOSED FEATURES ARE SHOWN ON THIS DRAWING FOR REFERENCE ONLY.
10. ALL EXISTING UTILITIES, FENCING AND SITE FEATURES SHOWN WITH CROSS HATCHING (---) ARE TO BE REMOVED (PAVING, GRAVEL, WALLS, WALKS, MH, CB, PIPE, ETC.).
11. THE CONTRACTOR MAY NOT HAVE ACCESS TO PERFORM WORK ON THE ENTIRE SITE AT ALL TIMES. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO BEGINNING WORK IN ANY AREA.
12. THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AND VEHICLE BARRIERS TO PREVENT ACCESS TO THE WORK AREA BY UNAUTHORIZED PERSONS.
13. THE CONTRACTOR SHALL MAINTAIN ACCESS TO SHARED DRIVEWAY UNLESS OTHERWISE ARRANGED WITH AFFECTED NEIGHBORS.
14. NO VEHICLE PARKING IS ALLOWED ON THE GREENBELT WITHOUT ADVANCE APPROVAL FROM THE CITY.

DEMOLITION SCHEDULE

- D1 REMOVE AND DISPOSE OF EXISTING SHED.
- D2 REMOVE EXISTING WOODEN RAMP, DECKING AND STAIRS.
- D3 REMOVE AND DISPOSE OF EXISTING CHAINLINK FENCE.
- D4 REMOVE AND DISPOSE OF EXISTING CONCRETE AND CURB.
- D5 REMOVE EXISTING GRAVEL (PATHWAY, DRIVE)
- D6 REMOVE EXISTING UTILITY LINE.
- D7 SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT.
- D8 REMOVE EXISTING SIDEWALK TO NEAREST PANEL JOINT.
- D9 REMOVE EXISTING OVERHEAD ELECTRIC LINES. COORDINATE WITH BED.
- D10 REMOVE EXISTING GAS LINE. COORDINATE WITH VERMONT GAS.
- D11 COORDINATE REMOVAL OF EXISTING PLANTINGS WITH OWNER AND LANDSCAPE ARCHITECT.
- D12 REMOVE EXISTING TREE AND STUMP.
- D13 REMOVE PORTION OF EXISTING PORCH STRUCTURE PER ARCHITECTURAL PLANS.

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Rev. No.	Description
1	DRB Submittal 08/03/16

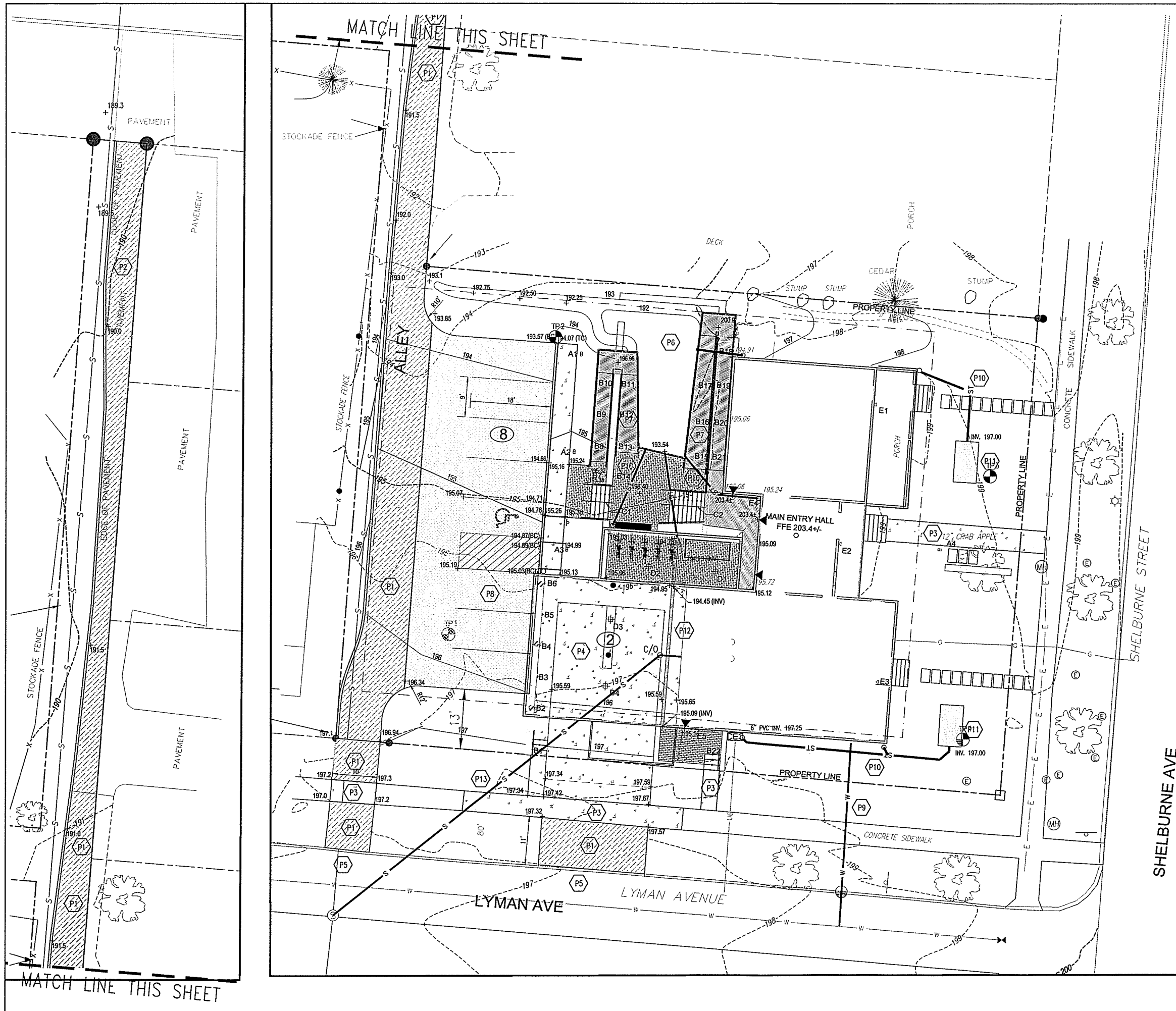
ENGINEERING VENTURES PC
200 Flynn Avenue, Suite 2A, Burlington, VT 05401
Tel: 802.463.6235 Fax: 802.463.6306
85 Mechanic Street, Suite 350A, Lebanon, NH 03766
Tel: 603.442.3333 Fax: 603.441.9311
www.engineeringventures.com

Client:
Richardson Properties, LLC
P.O. Box 276
South Hero, VT
05486

Sheet Title:
Existing Conditions and
Demolition Plan
Project Title:
435/441 Shelburne Street Multi-Family
Burlington, Vermont

Designed By: PB
Checked By: -
Drawn By: WC
Scale: -
Date: August, 2016

C1.0
EV#16188



GENERAL NOTES

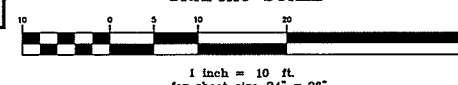
1. LOCATE AND PROTECT IN PLACE ALL EXISTING UNDERGROUND AND OVERHEAD POWER, TELEPHONE, AND DATA LINES NOT NOTED FOR DEMOLITION.
2. COORDINATE ALL WORK NEAR OR ON UTILITIES OWNED BY OTHERS WITH THE UTILITY PROVIDER.
3. PROTECT ALL DISTURBED AREAS FROM EROSION IN ACCORDANCE WITH THE EROSION PREVENTION AND SEDIMENT CONTROL PLAN.
4. STABILIZE ALL UPSTREAM AREAS BEFORE BUILDING RAIN GARDEN.

SITE AND UTILITY NOTES

- P1 NEW ASPHALT PAVEMENT WITH 6" ASPHALT CURB. SEE DETAIL SHEET C3.0.
- P2 NEW ASPHALT COURSE OVER EXISTING BASE WITH 6" ASPHALT CURB. SEE DETAIL C3.0
- P3 NEW CONCRETE SIDEWALK. SEE DETAIL SHEET C3.0.
- P4 NEW CONCRETE DRIVE AND PARKING SLAB. SEE DETAIL SHEET C3.0
- P5 NEW CONCRETE CURB. SEE SHEET C3.0.
- P6 NEW RAIN GARDEN. SEE DETAIL SHEET C3.2
- P7 NEW ACCESSIBLE RAMP. SEE LANDSCAPE ARCHITECT PLANS.
- P8 NEW PERVIOUS PAVERS. REFER TO DETAIL C3.0.
- P9 NEW 4" DI WATERLINE AND GATE VALVE. SEE DETAIL SHEET C3.0.
- P10 PVC STORM DRAIN LINE. SEE DETAIL SHEET C3.2
- P11 NEW STORMTECH INFILTRATION CHAMBERS (2 AT EACH LOCATION). SEE DETAIL SHEET C3.2
- P12 NEW TRENCH DRAIN.
- P13 NEW 4" PVC SEWER LINE AND CLEANOUT. SEE DETAIL SHEET C3.1

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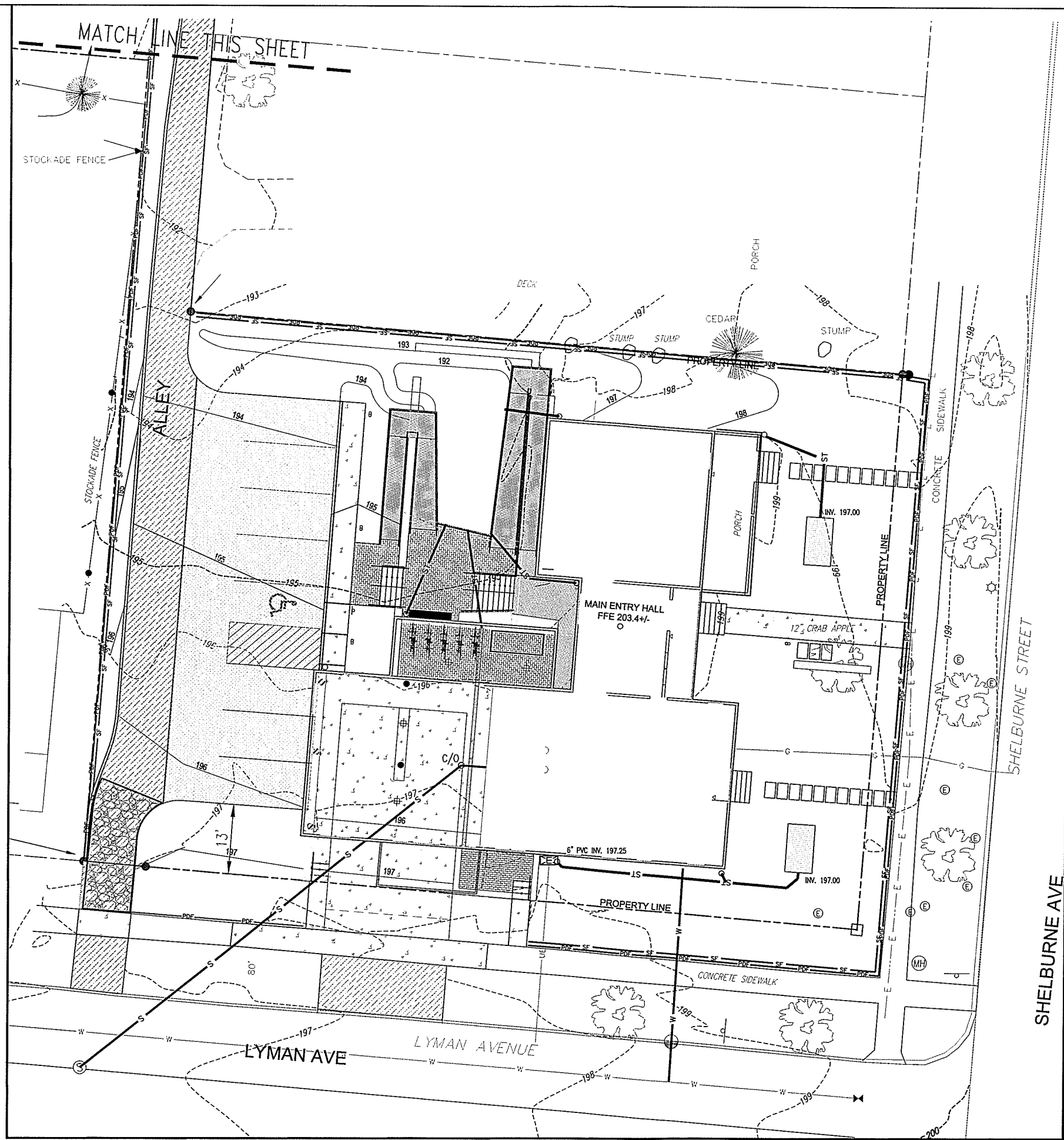
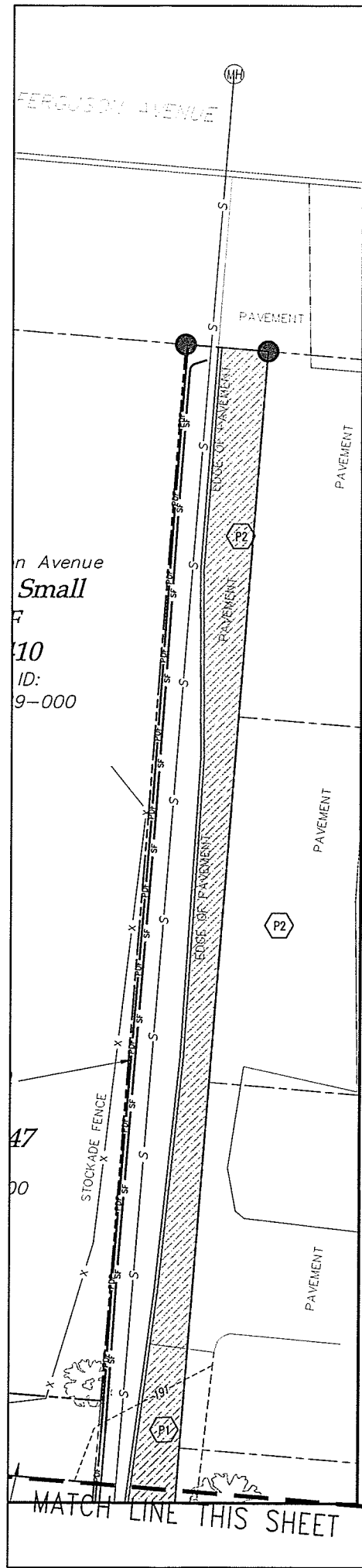
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www.engineeringventures.com

Client:
Richardson Properties, LLC
P.O. Box 276
South Hero, VT
05486

Sheet Title: **Site Plan**
Project Title: **435/441 Shelburne Street Multi-Family**
Burlington, Vermont

Designed By: PB
Checked By:
Drawn By: WC
Scale:
Date: August, 2016

C1.1

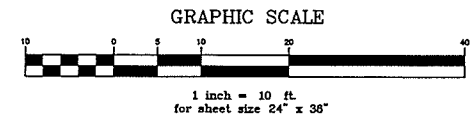


- GENERAL EROSION CONTROL NOTES
1. IDENTIFY THE CONTRACTOR AND PERSON RESPONSIBLE FOR DAY TO DAY MONITORING, IMPLEMENTATION, AND OVERSIGHT OF EROSION PREVENTION AND SEDIMENT CONTROL MEASURES IMPLEMENTED ON SITE.
 2. A PRE-CONSTRUCTION MEETING INCLUDING THE ON-SITE COORDINATOR (OSC), CONTRACTOR, BURLINGTON PUBLIC WORKS DEPARTMENT, AND ENGINEER IS TO BE SCHEDULED BY THE CONTRACTOR AT LEAST ONE WEEK PRIOR TO THE PLANNED START OF CONSTRUCTION, UNLESS WAIVED BY CITY STAFF. AT LEAST 72 HOURS OF NOTICE TO THE ABOVE PARTIES IS REQUIRED PRIOR TO THE MEETING.
 3. EROSION AND SEDIMENT CONTROL PRACTICES SHALL COMPLY WITH THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL (LATEST UPDATE) AND CHAPTER 26 OF THE BURLINGTON CITY ORDINANCE (WASTEWATER, STORMWATER, AND EROSION CONTROL).
 4. A COPY OF THE EPSC PLAN, WITH ALL AMENDMENTS AND ASSOCIATED REPORTS SHALL BE KEPT ON SITE DURING CONSTRUCTION, INCLUDING ALL AMENDMENTS. NOTE THAT AMENDMENTS ARE TO BE APPROVED IN ADVANCE BY THE BURLINGTON DEPARTMENT OF PUBLIC WORKS.
 5. DISTURBANCE LIMITS ARE TO BE MARKED, AND THE FOLLOWING MANAGEMENT PRACTICES INSTALLED, PRIOR TO BEGINNING EARTH WORK IN ANY GIVEN AREA: SILT FENCE, CONSTRUCTION ENTRANCE, INLET PROTECTION, AND FIBER ROLLS.
 6. ALL DISTURBED AREAS ARE TO BE STABILIZED (TEMPORARY OR FINAL) WITHIN 48 HOURS OF INITIAL DISTURBANCE. AFTER THIS TIME, ANY DISTURBANCE WITHIN THIS WORK AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
 - a. STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA WITHIN 24 HOURS AND NO PRECIPITATION IS FORECAST DURING THAT PERIOD.
 - b. WORK IS OCCURRING WITHIN A SELF-CONTAINED EXCAVATION, 2 FEET OR MORE IN DEPTH.
 7. THE PERIOD BETWEEN OCTOBER 15TH AND APRIL 15TH IS CONSIDERED THE "WINTER CONSTRUCTION PERIOD". SOIL STABILIZATION IS REQUIRED AT THE END OF EACH WORK DAY DURING THIS PERIOD, WITH EXCEPTIONS DISCUSSED IN ADVANCE WITH THE ENGINEER.
 8. ALL STABILIZATION INVOLVING SEEDING IS TO BE COMPLETED BY SEPTEMBER 15TH.
 9. CONTRACTOR PARKING ON CITY GREENBELT AREAS IS PROHIBITED. ANY DAMAGE TO THESE AREAS IS TO BE REPAIRED IMMEDIATELY.
 10. PREVENT SEDIMENT TRANSPORT OFF SITE. REMOVE ANY SEDIMENT DISCHARGED OR DEPOSITED ONTO CITY ROADS, SIDEWALKS, OR SEWERS ON ADJACENT PROPERTIES.

EPSC STRUCTURE LEGEND

- EROSION PREVENTION AND SEDIMENT CONTROL STRATEGY**
THE FOLLOWING TECHNIQUES WILL BE UTILIZED AS PART OF A SEDIMENT AND EROSION CONTROL PROGRAM. THE SEDIMENT AND EROSION CONTROL PROGRAM WILL BE IMPLEMENTED IN STAGES. CERTAIN ITEMS FROM ONE STAGE WILL LIKELY OVERLAP OR TAKE PLACE CONCURRENTLY WITH ITEMS FROM OTHER STAGES. THE CONTRACTOR SHALL REFER TO AND CONFORM WITH THE STATE OF VT LOW RISK SITE HANDBOOK FOR EROSION PREVENTION AND SEDIMENT CONTROL. REFER TO DETAILS ON SHEET C3.4.
- STABILIZED CONSTRUCTION ENTRANCE**
THIS STRUCTURAL MEASURE IS A STABILIZED PAD OF AGGREGATE UNDERLAY WITH FILTER FABRIC LOCATED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE TO OR FROM A PUBLIC RIGHT-OF-WAY, STREET, ALLEY, SIDEWALK, OR PARKING AREA. THE PURPOSE OF A STABILIZED CONSTRUCTION ENTRANCE IS TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY OR STREETS. THIS WILL REMAIN IN PLACE AND BE MAINTAINED UNTIL THE PROJECT SITE HAS BEEN PERMANENTLY STABILIZED.
- SILT FENCING**
THIS STRUCTURAL MEASURE IS A TEMPORARY BARRIER OF GEOTEXTILE FABRIC USED TO INTERCEPT SEDIMENT LADEN RUNOFF FROM SMALL DRAINAGE AREAS OF DISTURBED SOIL. IT IS INSTALLED ALONG THE PERIMETER OF IMPACTED AREAS AND ALONG THE BASE OF THE FILL SLOPES. ADDITIONALLY, WHEN DESIGNATED ALONG THE LIMITS OF DISTURBANCE, INSTALL CONSTRUCTION FENCE BEHIND THE SILT FENCE. THESE WILL REMAIN IN PLACE AND BE MAINTAINED UNTIL THE PROJECT SITE HAS BEEN PERMANENTLY STABILIZED.
- PROJECT DEMARCATION FENCING**
THE CONTRACTOR SHALL CONTAIN ANY EARTH MOVING ACTIVITIES WITHIN THE DESIGNATED LIMITS SHOWN ON THIS PLAN. THE ENGINEER SHALL REVIEW THE SITE TO MAKE ANY ADJUSTMENTS TO ACCOUNT FOR ENVIRONMENTALLY SENSITIVE AREAS, SPECIMEN TREES AND SPECIAL AREAS OF CONCERN.
- THE LIMITS SHALL BE DEMARCATED WHERE INDICATED ON THIS PLAN WITH ORANGE CONSTRUCTION FENCE (OR CHAIN LINK FENCE WHERE SECURITY OR PEDESTRIAN SAFETY IS REQUIRED.) SILT FENCE IS NOT AN ACCEPTABLE MEANS OF DEMARCATION.

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Client: Richardson Properties, LLC P.O. Box 276 South Hero, VT 05486	
Sheet Title: Erosion Prevention and Sediment Control Plan	
Project Title: 435/441 Shelburne Street Multi-Family Burlington, Vermont	
Designed By: PB	Checked By: -
Drawn By: WC	Scale: -
Date: August, 2016	
C1.2 EV#16188	

WATER NOTES

- GENERAL
1. METERS FOR SERVICE CONNECTIONS 3/4" OR SMALLER WILL BE PROVIDED BY THE WATER UTILITY, BUT INSTALLED BY THE CONTRACTOR.
 2. WATER SYSTEM COMPONENTS ARE TO BE LEAD FREE, AND APPROVED BY THE WATER DEPARTMENT.
 3. A REPRESENTATIVE FOR THE WATER UTILITY MUST BE PRESENT, UNLESS OTHERWISE NOTIFIED IN WRITING, FOR ALL WATER MAIN TAPS.
 4. WATER INFRASTRUCTURE IS TO INCLUDE SWING TIES. "AS BUILT" DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR WHICH REFLECT ACTUAL UTILITY LOCATIONS AND RESULTING EASEMENTS AT THE TIME OF COMPLETION OF THE SYSTEM.
 5. THE WATER UTILITY SHALL INSPECT ALL ITEMS TO BE TAKEN OVER BY THE TOWN PRIOR TO ACCEPTANCE.
 6. THE CONTRACTOR SHALL PROVIDE A 2 YEAR WARRANTY ON ALL WATER RELATED ITEMS FROM THE TIME OF COMPLETION OF THE PROJECT.

EXISTING UTILITIES

1. LOCATION OF UTILITIES AND UNDERGROUND STRUCTURES ARE SHOWN AS APPROXIMATE ON THE CONTRACT DOCUMENTS.
2. ALL UTILITIES SHALL BE LOCATED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION.
3. EXISTING UTILITIES SHALL BE PROTECTED AND SUPPORTED DURING CONSTRUCTION.
4. ALL WATER, GAS, CABLE, TELEPHONE, ELECTRIC, SEWER, AND OTHER UTILITIES FOUND TO INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED IN A MANNER ACCEPTABLE TO THE ENGINEER.

PIPE BEDDING

1. SAND BEDDING MEETING REQUIREMENTS OF EARTHWORK SPECIFICATIONS.
2. SAND BLANKET MEETING REQUIREMENTS OF EARTHWORK SPECIFICATIONS.
3. TRENCH FINAL BACKFILL MATERIAL - MATERIAL WILL EXCLUDE PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT, CLAY, LARGE ROCKS (12" DIMENSION), OR ANY MATERIAL DETERMINED BY THE ENGINEER THAT WILL NOT BE SUITABLE.

WATER MAINS

1. ONCE INSTALLED PERFORM A HYDROSTATIC AND LEAKAGE TEST ACCORDING TO ANWA C500(LATEST REVISION) ON EACH PIPE LINE.
2. THE ENGINEER AND THE WATER UTILITY SHALL BE GIVEN AT LEAST 72 HOURS NOTICE BEFORE THE TEST IS CONDUCTED. TEST MUST BE WITNESSED BY THE ENGINEER.
3. SPECIFIED TEST PRESSURE IS 200 PSI, AND PRESSURE DURING TEST SHALL NOT VARY BY MORE THAN 5 PSI.

DUCTILE IRON PIPE - ANWA C151

1. FITTINGS: DUCTILE IRON, STANDARD THICKNESS, 350 PSI PRESSURE RATING. (ANWA C110, C153, C105, ANSI A21.10).
2. FITTINGS: CAST IRON, 250 PSI PRESSURE RATING (ANSI A21.10).
3. JOINTS: MECHANICAL, PUSH-ON AND FLANGED (ANWA C111, C115).
4. GASKETS:
 - A. MECHANICAL AND PUSH-ON JOINTS, ANSI A21.11.
 - F. FLANGED JOINTS: 1/8" THICK RING OR FULL FACED RUBBER, ANSI A21.15.
5. BOLTS/NUTS:
 - A. MECHANICAL JOINT: ANSI A21.11.
 - F. FLANGED JOINT: ANSI A21.15.
6. MECHANICAL JOINT GLANDS SHALL BE "MEGA-LUG" RETAINER GLANDS.
7. LININGS AND LINING REPAIR TO ANWA/ANSI C104:
 - A. INTERIOR - CEMENT LINED, DOUBLE THICKNESS BITUMINOUS SEAL.
 - F. EXTERIOR - BITUMINOUS COATING APPROXIMATELY 2 MILS THICK, ANSI A21.15, ANSI A21.15, AND ANSI A21.10.
 - C. FLANGE MACHINED FACE COATING: ANSI A21.15.

COPPER TUBING

1. TYPE-K, ANNEALED, ASTM B88
2. FITTINGS: ASME B16.18, CAST COPPER, OR ASME B16.22, WROUGHT COPPER.
3. JOINTS: COMPRESSION CONNECTION OR AWS A5.8, BOP SILVER BRAZE.

CHLORINATION OF DOMESTIC WATER LINES

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE WATER UTILITY AT LEAST 72 HOURS IN ADVANCE OF BEGINNING ANY DISINFECTION OF WATER MAINS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR BACTERIOLOGICAL TESTING AS REQUIRED BY THIS SPECIFICATION AND REFERENCE STANDARDS MENTIONED.
3. DISINFECT ALL NEW PIPELINE SYSTEMS IN ACCORDANCE WITH ANWA C651, INCLUDING:
 - A. METHOD OF CHLORINE APPLICATION: USE CONTINUOUS FEED METHOD OR SLUG METHOD. (TABLET METHOD IS NOT ACCEPTABLE).
 - B. FORM OF CHLORINE UTILIZED.
 - C. FINAL FLUSHING.
 - D. BACTERIOLOGICAL TESTING.
 - E. REPETITION OF PROCEDURE.

GATE VALVES

1. RESILIENT SEAT GATE VALVES BY KENNEDY "KEN-SEAL" OR EQUAL.
2. IRON BODY GATE VALVES TO MEET ANWA C-509-87.
3. STEM CONSTRUCTION: NON-RISING.
4. STEM SEALS: DOUBLE O-RING.
5. GATE: CAST IRON RESILIENT WEDGE WITH SYNTHETIC ELASTOMER COATING, AND SHALL BE EPOXY COATED (FUSION BONDED) INSIDE AND OUT.
6. BONNET HARDWARE SHALL MEET ASTM A307, CADMIUM PLATED.
7. OUTLET CONNECTION: STANDARD MECHANICAL JOINT
8. OPERATION: OPEN TO THE RIGHT.

TAPPING VALVES

1. TAPPING VALVES TO MEET ANWA/ANWA C509-87, STANDARD FOR RESILIENT SEATED GATE VALVES.
 2. VALVES SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI.
 3. VALVES SHALL OPEN RIGHT
 4. INLET FLANGES SHALL BE CLASS 125, ANSI B16.1, OR ANSI/ANWA C110/A21.10.
 5. OUTLET CONNECTION: STANDARD MECHANICAL JOINT.
 6. STEM SEALS: O-RING.
 7. STEM CONSTRUCTION: NON-RISING.
 8. SEATING: PARALLEL SEAT
 9. END CONNECTIONS: MECHANICAL ON RUN, FLANGED ON BRANCH.
 10. BURIED TAPPING VALVES SHALL BE PROVIDED WITH A 2 INCH SQUARE WRENCH NUT AND CAST IRON VALVE BOX. IF DEPTH FROM GRADE TO TOP OF VALVE OPERATING NUT IS GREATER THAN 6'-0" A VALVE STEM RISER MADE OF HIGH STRENGTH STEEL SHALL BE PROVIDED. DEPTH FROM VALVE STEM RISER NUT TO GRADE WILL BE 4 TO 6 FEET.
- TAPPING SLEEVES
1. ANWA C509, LATEST REVISION.
 2. ANWA C207, CLASS D, MAX. WORKING PRESSURE OF 150 PSI.
 3. SLEEVES: SPLIT SLEEVES OF CAST IRON OR DUCTILE IRON.
 4. MECHANICAL JOINT ENDS WITH END AND GASKET SEALS.
 5. PROVIDE A 3/4" NPT TEST PLUG OR OTHER PROVISION FOR AIR TESTING THE VALVE AND SLEEVE AT MAXIMUM WORKING PRESSURE.
 6. BOLTS AND NUTS, MECHANICAL JOINTS: HIGH STRENGTH CAST IRON OR HIGH STRENGTH LOW ALLOY STEEL, ANSI/ANWA C111/A21.11-90.
 7. BOLTS AND NUTS, FLANGED JOINTS: HIGH STRENGTH, LOW CARBON STEEL CONFORMING TO ANSI/ANWA C110/A21.10-87, APPENDIX A.
 8. COAT ALL NUTS AND BOLTS WITH A RUST RESISTANT LUBRICANT.
 9. ALL BOLTS AND NUTS USED WITH PIPE SLEEVES SHALL BE BRUSH COATED HEAVILY AFTER FINAL TIGHTENING WITH BITUMASTIC COLD-APPLIED MATERIAL TO THOROUGHLY COVER ALL EXPOSED SURFACES OF BOLTS AND NUTS.

VALVE BOXES

1. ACCEPTABLE MANUFACTURER'S: MUELLER, CLOW, OR EQUAL.
2. CLOW F-2452 SLIDING TYPE, TWO PIECE, OR EQUAL.
3. 5 1/4 INCH SHAFT.
4. SIZE 664-A (40-60 INCH OVERALL LENGTH).
5. CAST IRON.
6. CLOW F-2490 LIDS OR EQUAL.
7. THE WORD "WATER" TO BE CAST INTO TOP OF COVERS, AND ARROW SHOWING DIRECTION OF OPENING.

NOTE:
THE CITY OF BURLINGTON HOLDS THE RIGHT OF FIRST REFUSAL FOR ALL WATER SYSTEM WORK. COORDINATE WITH PUBLIC WORKS DEPARTMENT.

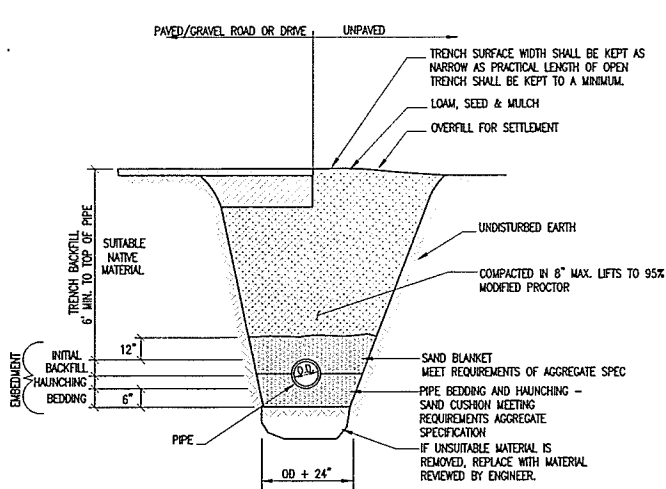
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AUG 03 2016

DEPARTMENT OF
LANDING & ZONING
Water & Sewer

Project Title:
435/441 Shelburne Street Multi-Family
Burlington, Vermont

Designed By: PB
Checked By: -
Drawn By: WC
Scale: N.T.S.
Date: August, 2016

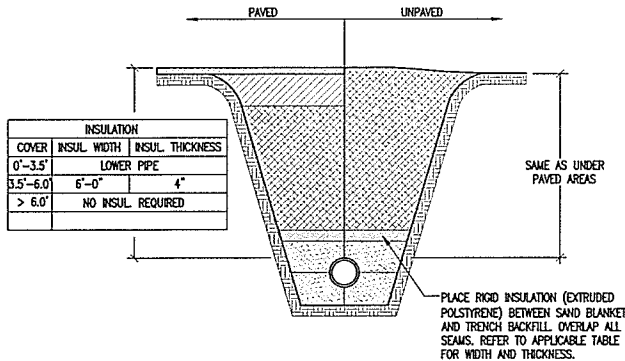
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EV#16188



- WATER TRENCH NOTES:
1. BEDDING TO PROVIDE A FIRM, STABLE, CONTINUOUS AND UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE.
 2. PROVIDE 6" MINIMUM COVER OVER WATER PIPE.
 3. INSTALL WATER PIPE IN ACCORDANCE WITH ANWA STANDARD C600.

TYPICAL WATER TRENCH DETAIL

SCALE: NONE

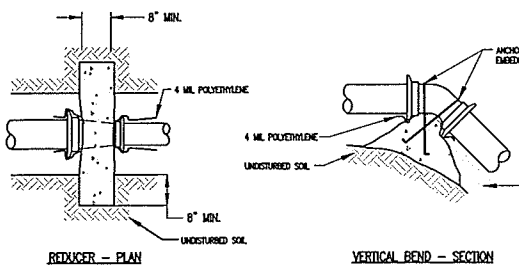


TRENCH NOTES:

1. REFER TO APPLICABLE TRENCH DETAIL FOR SPECIFIC BACKFILL INFORMATION.

INSULATION OVER SHALLOW WATER LINE DETAIL

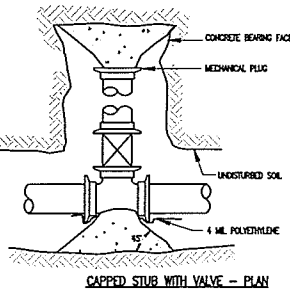
SCALE: NONE



MINIMUM BEARING SURFACE (SF) 150 PSI WORKING PRESSURE							
PIPE DIA.	TEE	HYD.	90° BEND	45° BEND	22.5° BEND	11.25° BEND	END CAP
1,000 PSF SOIL BEARING CAPACITY	10"	16	16	6	3	2	16
	8"	10	10	4	2	1	10
	6"	7	7	2	1	0.5	7
	4"	3	3	1	0.5	0.5	3
	2"	1	1	0.5	0.5	0.5	1
3,000 PSF SOIL BEARING CAPACITY	10"	6	6	2	1	1	6
	8"	4	4	1.25	1	1	4
	6"	2	2	1	1	1	2
	4"	1	1	1	1	1	1
	2"	1	1	1	1	1	1
5,000 PSF SOIL BEARING CAPACITY	10"	4	4	1.25	1	1	4
	8"	2	2	1	1	1	2
	6"	1.25	1.25	1	1	1	1.25
	4"	1	1	1	1	1	1
	2"	1	1	1	1	1	1

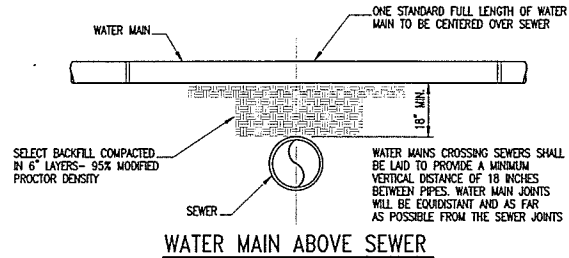
THRUST BLOCK NOTES:

1. THRUST BLOCKS SHALL BE PROVIDED AT ALL WATER LINE TEES, HYDRANTS, BENDS, REDUCERS, AND END CAPS.
2. HYDROSTATIC AND LEAKAGE TEST PRESSURE PER SPECIFICATIONS.
3. PLACE 4 MIL POLYETHYLENE BETWEEN FITTINGS AND THRUST BLOCKS.
4. CONCRETE SHALL HAVE 4000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AND AIR ENTRAINMENT OF 4 TO 6% BY VOLUME.
5. UTILIZE METALLIC MECHANICAL JOINT RESTRAINTS ON ALL FITTINGS IN ADDITION TO CONCRETE THRUST BLOCKS.



TYPICAL BEARING THRUST BLOCK

SCALE: NONE

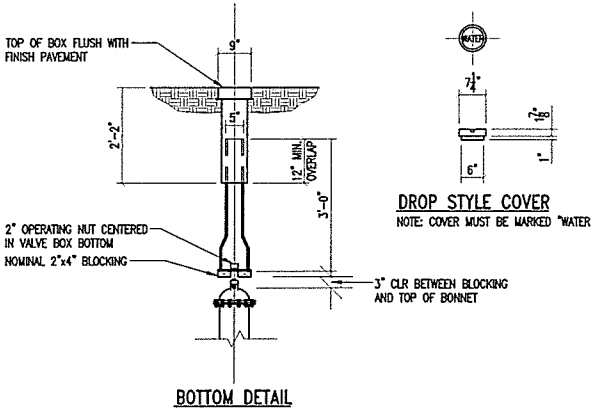


SEPARATION NOTES:

1. WATER MAIN RELATIONS TO SEWER SHALL BE IN ACCORDANCE WITH THE "RECOMMENDED STANDARDS FOR WATER WORKS" SO-CALLED TEN STATE STANDARDS.
2. WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWERS. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IF THIS DISTANCE CANNOT BE OBTAINED, THEN THE PIPES SHALL BE INSTALLED IN A SEPARATE TRENCH AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
3. WHEN IT IS IMPOSSIBLE TO MAINTAIN 18" VERTICAL SEPARATION OR WHERE THE SEWER MUST BE LAID ABOVE THE WATER MAIN; 1) THE CROSSING SHALL BE ARRANGED SO THAT ONE FULL LENGTH OF SEWER IS CENTERED ABOVE OR BELOW THE WATER LINE WITH SEWER JOINTS AS FAR AS POSSIBLE FROM WATER JOINTS; 2) THE SEWER PIPE MUST BE CONSTRUCTED TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 20 FEET EITHER SIDE OF THE CROSSING OR A TOTAL OF THREE PIPE LENGTHS, WHICH EVER IS GREATER; 3) THE SECTION CONSTRUCTED TO WATER MAIN STANDARDS MUST BE PRESSURE TESTED TO MAINTAIN 50 PSI FOR 15 MINUTES WITHOUT LEAKAGE PRIOR TO BACKFILLING BEYOND ONE FOOT ABOVE THE PIPE TO ASSURE WATER TIGHTNESS.

TYPICAL SEWER/WATER SEPARATION DETAIL

SCALE: NONE

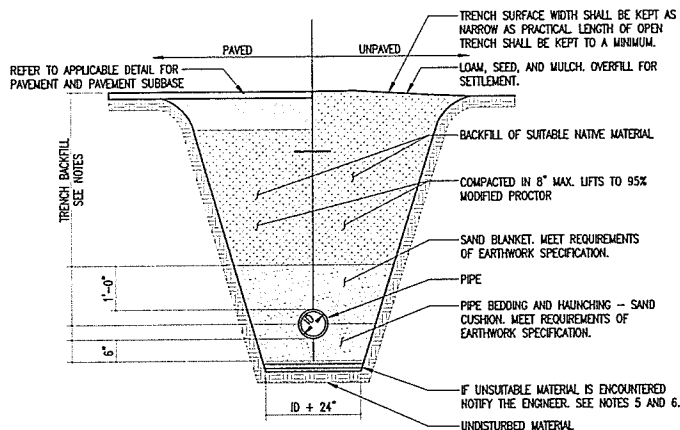


VALVE BOX NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. VALVE ROTATION PER OPW STANDARDS.

TYPICAL VALVE BOX DETAIL

SCALE: NONE

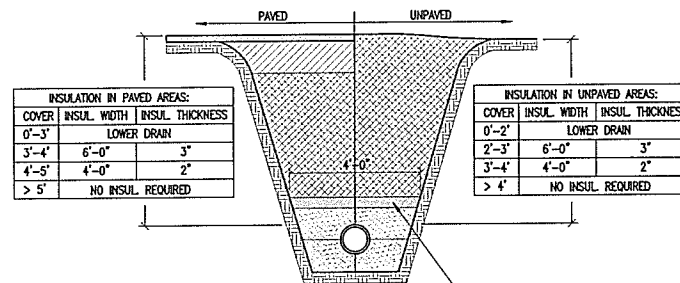


SANITARY SEWER TRENCH NOTES:

1. UNLESS OTHERWISE NOTED, ASSUME CLASS "C" SOILS. PERFORM ALL EXCAVATIONS TO OSHA REQUIREMENTS.
2. BEDDING TO PROVIDE A FIRM, STABLE, CONTINUOUS AND UNIFORM SUPPORT FOR FULL LENGTH OF PIPE.
3. FOR BUILDING SEWERS THE MINIMUM DEPTH TO THE TOP OF THE PIPE SHALL BE 4'-0". WHERE BUILDING SEWERS ARE TO BE INSTALLED AT A DEPTH LESS THAN 3'-0" UNDER DRIVEWAYS, EXTRA HEAVY CAST IRON OR OTHER HIGH STRENGTH PIPE SHALL BE USED. OTHERWISE, REFER TO INSULATION OVER SHALLOW SEWER LINE DETAIL.
4. FOR SEWER COLLECTION SYSTEMS THE MINIMUM DEPTH TO THE TOP OF THE PIPE SHALL BE 5'-0". THIS DEPTH SHALL BE INCREASED TO 6'-0" IN AREAS TO BE PLOWED DURING THE WINTER MONTHS. OTHERWISE, REFER TO INSULATION OVER SHALLOW SEWER LINE DETAIL.
5. BACKFILL SHALL BE OF A SUITABLE MATERIAL REMOVED FROM EXCAVATION EXCEPT WHERE OTHER MATERIAL IS SPECIFIED. DEBRIS, FROZEN MATERIAL, LARGE CLODS OR STONES, ORGANIC MATTER, OR OTHER UNSTABLE MATERIALS SHALL NOT BE USED FOR BACKFILL WITHIN TWO FEET OF THE TOP OF THE PIPE.
6. LEDGE, ROCK, BOULDERS AND LARGE STONES SHALL BE REMOVED TO PROVIDE A MINIMUM CLEARANCE OF FOUR INCHES BELOW AND ON EACH SIDE OF ALL PIPES.
7. SEWERS ON 20 PERCENT SLOPES OR GREATER SHALL BE ANCHORED SECURELY WITH CONCRETE ANCHORS OR EQUIVALENT, SPACED AS FOLLOWS:
 - A. NOT OVER 36 FEET CENTER TO CENTER ON GRADES 20 PERCENT AND UP TO 35 PERCENT
 - B. NOT OVER 24 FEET CENTER TO CENTER ON GRADES 35 PERCENT AND UP TO 50 PERCENT
 - C. NOT OVER 16 FEET CENTER TO CENTER ON GRADES 50 PERCENT AND OVER

SANITARY SEWER TRENCH DETAIL

SCALE: NONE

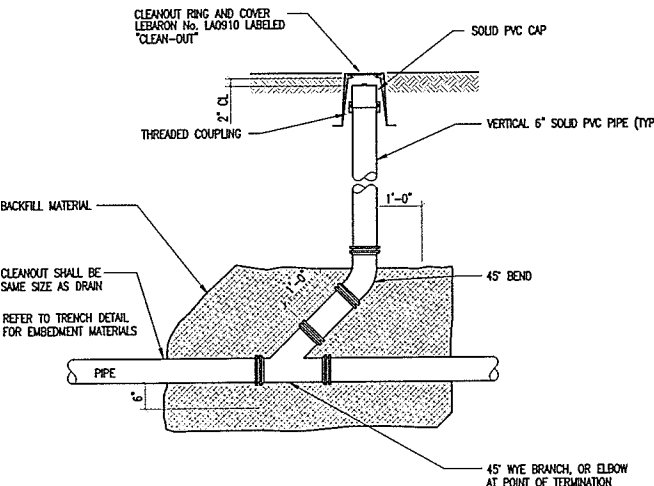


TRENCH NOTES:

1. REFER TO APPLICABLE TRENCH DETAIL FOR SPECIFIC BACKFILL INFORMATION.
2. RIGID EXTRUDED POLYSTYRENE INSULATION SHALL CONFORM WITH ASTM C578 - STANDARD SPECIFICATION FOR RIGID CELLULAR POLYSTYRENE THERMAL INSULATION AND SHALL BE DOW STYROFOAM HIGH LOAD 40 OR EQUIVALENT.

INSULATION OVER SHALLOW SEWER LINE DETAIL

SCALE: NONE



SEWER CLEANOUT DETAIL

SCALE: NONE

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DEPARTMENT OF PLANNING & ZONING

SANITARY SEWER NOTES

1. CONTRACTOR SHALL CONFORM TO GUIDELINES DETAILED IN THE VERMONT STATE SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR READING AND FOLLOWING THE FULL COMPLETE EDITION PROVIDED BY THE STATE.
2. THE BUILDING SEWER SHALL BE CONSTRUCTED IN A MANNER WHICH WILL PREVENT LEAKING, BREAKING OR CLOGGING.
3. SIZING AND SLOPE: MINIMUM BUILDING SEWER SIZE IS 4 INCHES (UNLESS SHOWN ON THE PLAN) AND A MINIMUM SLOPE IS 1/4" PER FOOT.
4. CLEANOUTS: CLEANOUTS SHALL BE PROVIDED AT EACH HORIZONTAL CHANGE IN DIRECTION OF THE BUILDING SEWER GREATER THAN 45 DEGREES AND WHERE INDICATED ON THE DESIGN DRAWINGS. BUILDING SEWER CHANGES IN DIRECTION WHICH EXCEED 45 DEGREES SHOULD BE MADE WITH TWO 45 DEGREE ELLS OR LONG SWEEP FITTINGS. MANHOLES ARE ACCEPTABLE IN LIEU OF CLEANOUTS. WHERE BUILDING SEWERS ARE TO BE INSTALLED AT A DEPTH OF LESS THAN 3 FEET UNDER DRIVEWAYS ARE ANTICIPATED, EXTRA HEAVY CAST IRON PIPE SHALL BE USED.
5. LEAKAGE: BUILDING SEWERS SHALL MEET THE LEAKAGE STANDARDS PRESCRIBED IN THE STATE OF VERMONT SPECIFICATIONS (EPR- CHAPTER 1). SEE BELOW FOR MORE DETAIL.
6. SLOPE, VELOCITY: ALL GRAVITY SEWER LINES SHALL BE INSTALLED WITH NOT LESS THAN THE SLOPES SHOWN BELOW:

PIPE SIZE (INCHES)	SLOPE (FEET/100 FEET)
4"	2%
6"	1%
8"	0.4%
7. CHANGES IN PIPE SIZE: WHEN A SMALLER SEWER JOINS A LARGE ONE, THE INVERT OF THE LARGER SEWER SHALL BE LOWERED SUFFICIENTLY TO MAINTAIN THE SAME ENERGY GRADIENT.
8. MATERIAL: PVC SDR 35, ASTM D3034, WITH PUSH-ON GASKETED JOINTS. GASKETS SHALL CONFORM TO ASTM D3212. SEWER JOINTS SHALL BE CONSTRUCTED TO MINIMIZE INFILTRATION AND TO PREVENT THE ENTRANCE OF ROOTS INTO THE SYSTEM.
9. TRENCHING: LEDGE, ROCK, BOULDERS AND LARGE STONES SHALL BE REMOVED TO PROVIDE A MINIMUM CLEARANCE OF FOUR INCHES BELOW AND ON EACH SIDE OF ALL PIPES.
10. BEDDING: SEE TRENCH DETAIL DRAWING FOR MATERIALS. TRENCH BACKFILL SHALL BE OF A SUITABLE NATIVE MATERIAL FREE FROM DEBRIS, FROZEN MATERIAL, LARGE CLODS OR STONES, ORGANIC MATTER, OR OTHER UNSTABLE MATERIALS.
11. LEAKAGE TESTS: UPON COMPLETION OF SEWER LINE CONSTRUCTION, THE SEWER LINE SHALL BE TESTED IN ACCORDANCE WITH THE STATE OF VERMONT SPECIFICATIONS (EPR - CHAPTER 1, APPENDIX "A"). LEAKAGE TESTS FOR GRAVITY SEWERS

PERFORM A PRESSURIZED AIR TEST ON THE GRAVITY LINE IN ACCORDANCE WITH THE VERMONT ENVIRONMENTAL PROTECTION RULES ON EACH SECTION OF THE GRAVITY SEWER. THE ENGINEER SHALL BE GIVEN 72 HOURS NOTICE BEFORE THE TEST IS CONDUCTED. TEST MUST BE WITNESSED BY THE ENGINEER.

PLUG ALL OPENINGS IN THE TEST SECTION. ADD AIR UNTIL THE INTERNAL PRESSURE OF THE LINE IS RAISED TO APPROXIMATELY 4.0 POUNDS/SQUARE INCH (PSI) GREATER THAN THE AVERAGE PRESSURE OF ANY GROUND WATER. AFTER THIS PRESSURE IS REACHED, ALLOW THE PRESSURE TO STABILIZE. THE PRESSURE WILL NORMALLY DROP AS THE AIR TEMPERATURE STABILIZES. THIS USUALLY TAKES 2 TO 5 MINUTES DEPENDING ON THE PIPE SIZE. THE PRESSURE MAY BE REDUCED TO 3.5 PSI BEFORE STARTING THE TEST.

WHEN THE PRESSURE HAS STABILIZED AND IS AT OR ABOVE THE STARTING TEST PRESSURE OF 3.5 PSI ABOVE THE PIPE, START THE TEST. IF THE PRESSURE DROPS MORE THAN 1.0 PSI DURING THE TEST TIME, THE LINE IS PRESUMED TO HAVE FAILED THE TEST. IF A 1.0 PSI DROP DOES NOT OCCUR WITHIN THE TEST TIME, THE LINE HAS PASSED THE TEST. THE TEST TIME SHALL BE DETERMINED FROM THE FOLLOWING TABLE. IF THE SECTION OF LINE TO BE TESTED INCLUDES MORE THAN ONE PIPE SIZE, CALCULATE THE TEST TIME FOR EACH SIZE AND ADD THE TEST TIMES TO ARRIVE AT THE TOTAL TEST TIME FOR THE SECTION.

PIPE SIZE (IN)	T (TIME) (MIN./100FEET)
3	0.2
4	0.3
6	0.7
8	1.2

12. INSTALLATION: PIPE SHALL BE LAID WITH BELL ENDS FACING UPGRADE AND LAYING SHALL START AT THE DOWNGRADE END.
13. WATER LINE SEPARATION
 - a. HORIZONTAL SEPARATION: SEWERS SHALL BE LAID FLAT AT LEAST TEN FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.

WHERE IMPOSSIBLE OR IMPRACTICABLE TO MAINTAIN THE TEN FOOT SEWER/WATER PIPE HORIZONTAL SEPARATION, (DUE TO LEDGE, BOULDERS OR OTHER UNUSUAL CONDITIONS) THE WATER LINE MAY BE IN A SEPARATE TRENCH OR ON AN EARTH SHELVE IN THE SEWER TRENCH PROVIDED THAT THE BOTTOM OF THE WATER LINE IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER. WHEREVER IMPOSSIBLE OR IMPRACTICAL TO MAINTAIN THE 18 INCH VERTICAL SEPARATION, THE SEWER LINE SHALL BE CONSTRUCTED USING PRESSURE PIPE TO NORMAL WATER LINE STANDARDS AND PRESSURE TESTED TO 50 PSI FOR 15 MINUTE PRIOR TO BACKFILLING.
 - b. CROSSINGS: SEWERS CROSSING WATER MAINS SHALL BE LAID BENEATH THE WATER MAIN WITH AT LEAST 18 INCHES VERTICAL CLEARANCE BETWEEN THE OUTSIDE OF THE SEWER AND THE OUTSIDE OF THE WATER MAIN. WHEN IT IS IMPOSSIBLE TO MAINTAIN THE 18 INCH VERTICAL SEPARATION:
 - 1.) THE CROSSING SHALL BE ARRANGED SO THAT ONE FULL LENGTH OF SEWER IS CENTERED ABOVE OR BELOW THE WATER LINE WITH SEWER JOINTS AS FAR AWAY AS POSSIBLE FROM WATER JOINTS.
 - 2.) THE SEWER PIPE MUST BE CONSTRUCTED TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 20 FEET EITHER SIDE OF THE CROSSING OR A TOTAL OF THREE PIPE LENGTHS, WHICHEVER IS GREATER.
 - 3.) THE SECTION CONSTRUCTED TO WATER MAIN STANDARDS MUST BE PRESSURE TESTED TO MAINTAIN 50 PSI FOR 15 MINUTES WITHOUT LEAKAGE PRIOR TO BACKFILLING BEYOND ONE FOOT ABOVE THE PIPE TO ASSURE WATER TIGHTNESS.
 - 4.) WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.
14. MANHOLES
 - a. DIAMETER: THE MINIMUM DIAMETER OF MANHOLES SHALL BE 48 INCHES; LARGE DIAMETERS ARE PREFERRED FOR CONNECTION TO LARGE DIAMETER SEWERS. A MINIMUM ACCESS DIAMETER OF 24 INCHES SHALL BE PROVIDED.
 - b. FLOW CHANNEL: FLOW CHANNELS SHALL BE PROVIDED IN THE BASE OF ALL MANHOLES AND THE FLOW CHANNEL THROUGH MANHOLES SHOULD BE MADE TO CONFORM IN SHAPE AND SLOPE TO THAT OF THE SEWERS.
 - c. MANHOLES SHALL BE OF THE PRE-CAST CONCRETE OR POUR-IN PLACE CONCRETE TYPE. MANHOLES SHALL BE WATERPROOFED ON THE EXTERIOR.
 - d. INLET AND OUTLET PIPES SHALL BE JOINED TO THE MANHOLE WITH A RUBBER-GASKETED FLEXIBLE WATERTIGHT CONNECTION THAT ALLOWS DIFFERENTIAL SETTLEMENT OF THE PIPE AND MANHOLE WALL TO TAKE PLACE.
 - e. ALL MANHOLES SHALL BE TESTED FOR LEAKAGE. LEAKAGE TESTING OF GRAVITY SEWERS UTILIZING THE WATER TESTING PROCEDURES TAKES INTO ACCOUNT THE LEAKAGE FROM ONE MANHOLE IN THE TEST SECTION. OTHERWISE, MANHOLES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

AFTER THE MANHOLE HAS BEEN ASSEMBLED IN PLACE, ALL LIFTING HOLES AND EXTERIOR JOINTS SHALL BE FILLED WITH AND POINTED WITH AN APPROVED NON-SHRINKING MORTAR. ALL PIPES AND OTHER OPENINGS INTO THE MANHOLE SHALL BE SUITABLY PLUGGED AND THE PLUGS PLACED TO PREVENT BLOWOUT.

EACH MANHOLE SHALL BE CHECKED FOR INFILTRATION BY FILLING WITH WATER TO THE TOP OF THE CONE SECTION. A STABILIZATION PERIOD OF ONE HOUR SHALL BE PROVIDED TO ALLOW FOR ABSORPTION. AT THE END OF THIS PERIOD, THE MANHOLE SHALL BE REFILLED TO THE TOP OF THE CONE. IF NECESSARY, AND THE MEASURING TIME OF AT LEAST SIX HOURS BEGUN. AT THE END OF THE TEST PERIOD, THE MANHOLE SHALL BE REFILLED TO THE TOP OF THE CONE MEASURING THE VOLUME OF WATER ADDED. THIS AMOUNT SHALL BE CONVERTED TO A 24 HOUR RATE AND THE LEAKAGE DETERMINED ON THE BASIS OF DEPTH. THE LEAKAGE FOR EACH MANHOLE SHALL NOT EXCEED ONE GALLON PER VERTICAL FOOT FOR A 24 HOUR PERIOD FOR EXFILTRATION AND THERE SHALL BE NO VISIBLE INFILTRATION. IF AN AIR TEST IS PERFORMED ON THE MANHOLE, INSTEAD OF THE WATER TEST, THE MANHOLE SHALL REMAIN UN-BACKFILLED DOWN TO THE SEWER LINE INVERTS DURING THE AIR TEST.

Stamp

Rev. No.	Description	Date
1	DRB Submittal	08/03/16

**ENGINEERING
VENTURES PC**
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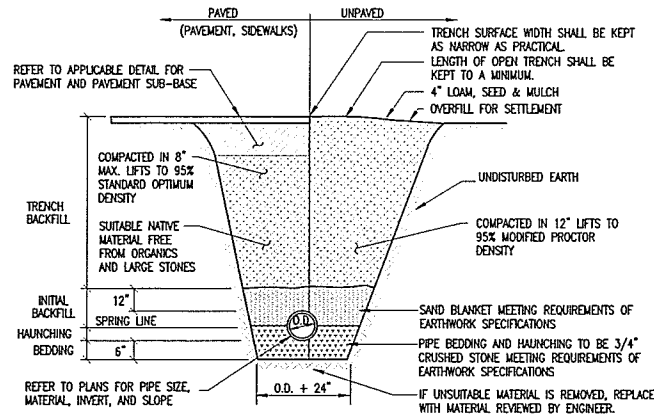
Client: Richardson Properties, LLC
P.O. Box 276
South Hero, VT 05486

Sheet Title: Sewer Details and Notes
Project Title: 435/441 Shelburne Street Multi-Family
Burlington, Vermont

Designed By: PB
Checked By: -
Drawn By: WC
Scale: N.T.S.
Date: August, 2016

C3.1

EV#16188

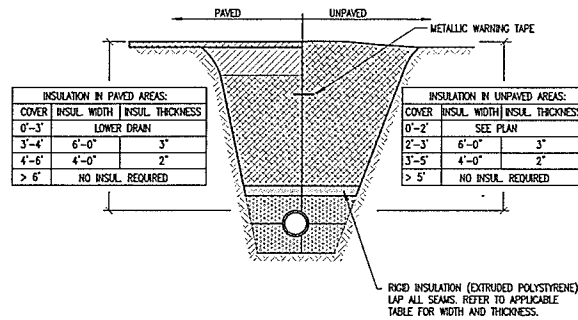


TYPICAL STORM DRAIN TRENCH NOTES

- UNLESS OTHERWISE NOTED, ASSUME CLASS "C" SOILS. PERFORM ALL EXCAVATIONS TO OSHA REQUIREMENTS.
- BEDDING TO PROVIDE A FIRM, STABLE, CONTINUOUS AND UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE.
- WHEN APPLICABLE, INSTALL PIPE WITH BELL ENDS DOWN SLOPE. PREVENT SEDIMENT FROM ENTERING NEW STORM DRAIN SYSTEM DURING CONSTRUCTION.
- NO MECHANICAL TAMPERS SHALL BE USED DIRECTLY OVER PIPE TO INSURE PIPE IS NOT DAMAGED.
- PROVIDE 6" OF COVER OVER PIPE IN PAVED AREAS AND 5" OF COVER OVER PIPE IN UNPAVED AREAS. REFER TO INSULATION DETAIL FOR AREAS WHERE PROPER COVER CAN NOT BE ACHIEVED.

TYPICAL STORM DRAIN TRENCH DETAIL

SCALE: NONE

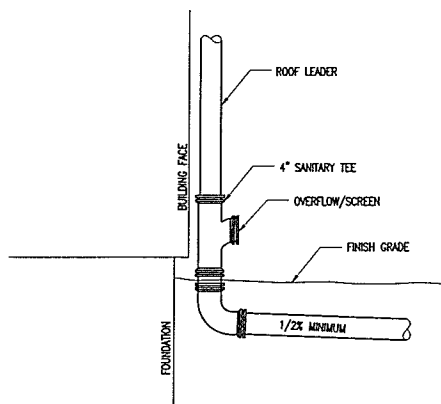


TRENCH NOTES

- REFER TO APPLICABLE TRENCH DETAIL FOR SPECIFIC BACKFILL INFORMATION.

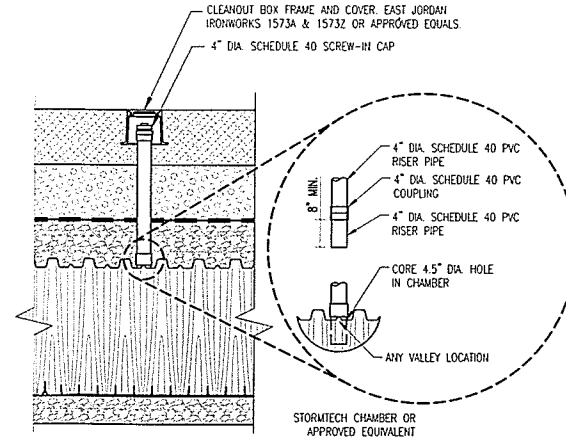
INSULATION OVER SHALLOW DRAIN DETAIL

NOT TO SCALE



DOWN SPOUT AND OVERFLOW DETAIL

SCALE: NONE



NOTES:

- INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.
- ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

INSPECTION PORT DETAIL

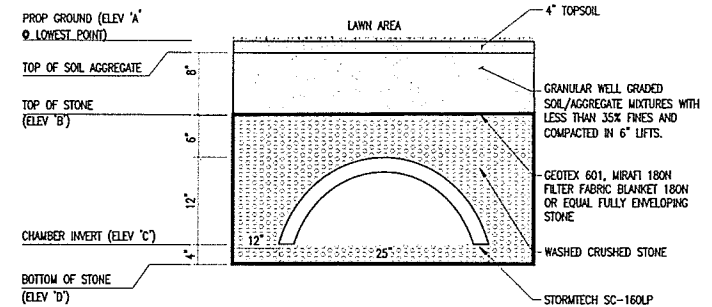
NORTH CHAMBER

A	FINISH GRADE	198.80
	APPROX. EXIST GRADE	198.80
B	TOP OF STONE	197.00
C	CHAMBER INVERT	195.50
D	BOTTOM OF STONE	195.00

SOUTH CHAMBER

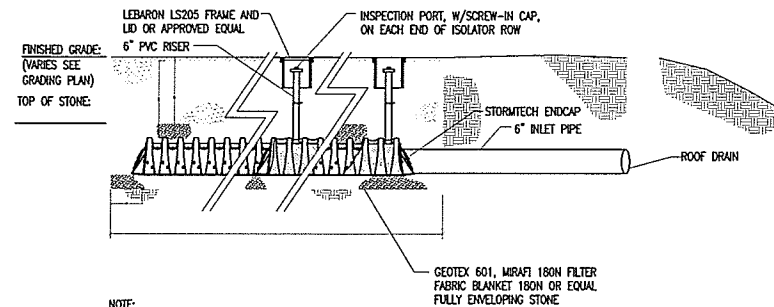
A	FINISH GRADE	199.70
	APPROX. EXIST GRADE	199.70
B	TOP OF STONE	198.50
C	CHAMBER INVERT	197.00
D	BOTTOM OF STONE	196.50

CHAMBER ELEVATIONS



- THERE SHALL BE A MINIMUM OF 6" OF CRUSHED STONE ABOVE AND ON EITHER SIDE OF EACH CHAMBER ROW.
- THERE SHALL BE A MINIMUM OF 4" OF CRUSHED STONE BELOW EACH CHAMBER ROW.

SECTION



- NOTE:
- UP-STREAM CONSTRUCTION SHALL BE COMPLETED AND STABILIZED PRIOR TO CONNECTING TO INFILTRATION CHAMBER.

PROFILE

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PLANNING & ZONING

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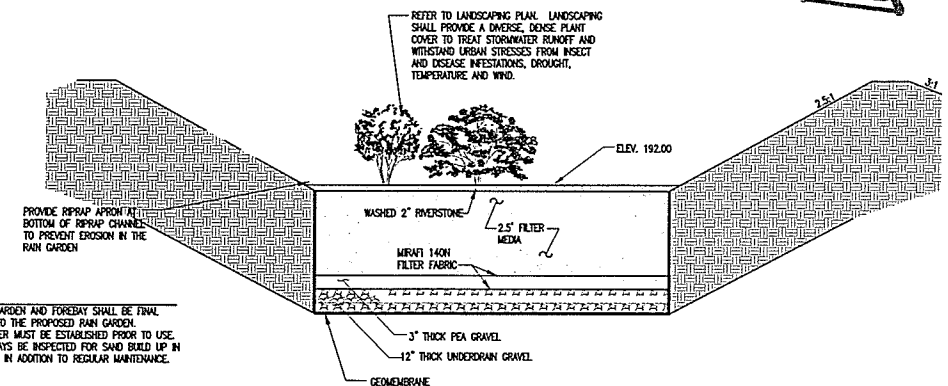
Client:
Richardson Properties, LLC
P.O. Box 276
South Hero, VT
05486

Sheet Title: Storm Water Details

Project Title: 435/441 Shelburne Street Multi-Family
Burlington, Vermont

Designed By: PB
Checked By: -
Drawn By: WC
Scale: N.T.S.
Date: August, 2016

C3.2
EV#16188



RAIN GARDEN NOTES:

- UPGRADIENT AREAS DRAINING TO RAIN GARDEN AND FOREBAY SHALL BE FINAL STABILIZED PRIOR TO DIRECTING RUNOFF INTO THE PROPOSED RAIN GARDEN.
- A DENSE AND MOOROUS VEGETATIVE COVER MUST BE ESTABLISHED PRIOR TO USE.
- PRE-TREATMENT CHAMBERS SHOULD ALWAYS BE INSPECTED FOR SAND BUILD UP IN THE CHAMBER FOLLOWING THE SPRING MELT IN ADDITION TO REGULAR MAINTENANCE.

MATERIALS SPECIFICATIONS:

PARAMETER	SPECIFICATION	SIZE	NOTES
FILTER MEDIA (24" DEEP)	COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL
	HARDWOOD CHIPS	20%	200
	TOPSOIL	20%	1/2"
	LOAMY SAND	60%	100
RIVER STONE	2" WASHED, ROUNDED STONE MATERIAL	10	85 TO 100
		20	70 TO 100
		60	15 TO 40
		100	8 TO 15
PEA GRAVEL	ASTM C33-03	NO. 8 (3/8" - #8)	

NOTE:

WOOD CHIPS SHALL BE CHIPPED HARDWOOD WITH FINES AS INDICATED.

CLEAN TOPSOIL, MEETING LANDSCAPE SPECIFICATIONS.

USDA SOIL TYPE FOR LOAMY COARSE SAND

APPROVED BY LANDSCAPE ARCHITECT.

THE SOIL (EXCLUDING WOOD CHIPS) SHOULD BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 1/2" INCH. NO OTHER MATERIALS OR SUBSTANCES SHOULD BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE FILTER MEDIA SHOULD BE FREE OF NOXIOUS WEEDS. THE FILTER MEDIA SHOULD BE TESTED AND SHOULD MEET THE FOLLOWING CRITERIA:

PH RANGE 5.2 - 7.0

ORGANIC MATTER 1.5 - 4%

MAGNESIUM 35 LB./AC

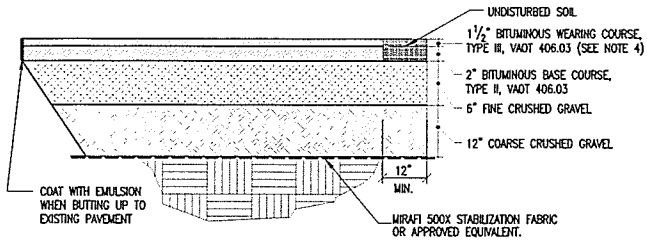
PHOSPHORUS NO MINIMUM

POTASSIUM 120 LB./AC

SOLUBLE SALTS NOT TO EXCEED 500 PPM

RAIN GARDEN DETAIL

NOT TO SCALE



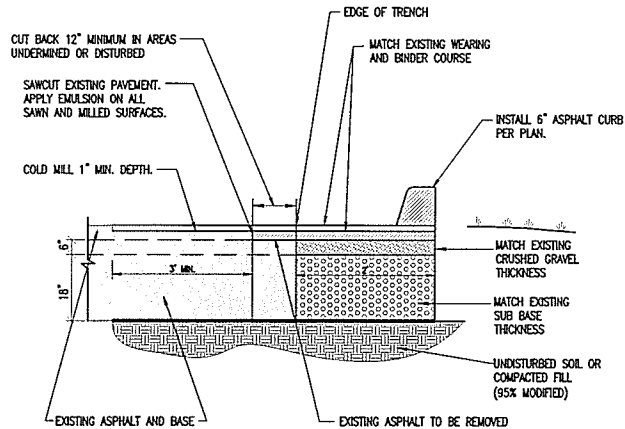
PAVEMENT PATCHING NOTES:

1. IN ALL PAVEMENT AREAS TO BE PATCHED, SAW CUT AND REMOVE EXISTING PAVEMENT.
2. EXCAVATE BASE MATERIAL AND SUB-BASE MATERIAL IF INADEQUATE.
3. COMPACT ALL FILL MATERIAL TO 95% MODIFIED PROCTOR DENSITY.

TYPICAL PAVEMENT DETAIL

SCALE: NONE

1



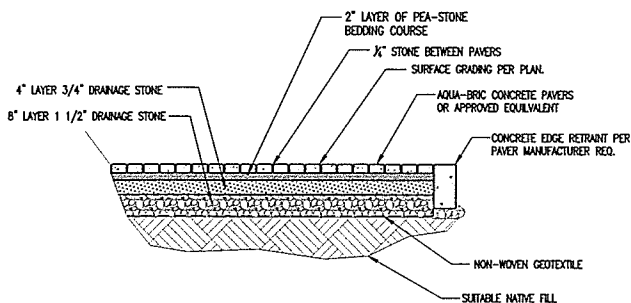
PAVEMENT PATCHING NOTES:

1. IN ALL PAVEMENT AREAS TO BE PATCHED, SAW CUT AND REMOVE EXISTING PAVEMENT.
2. EXCAVATE BASE MATERIAL AND SUB-BASE MATERIAL IF INADEQUATE.
3. COMPACT ALL FILL MATERIAL TO 95% MODIFIED PROCTOR DENSITY.

PAVING PATCH DETAIL

SCALE: NONE

2



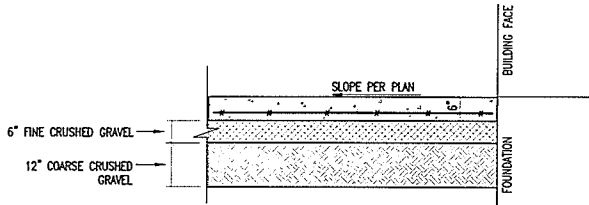
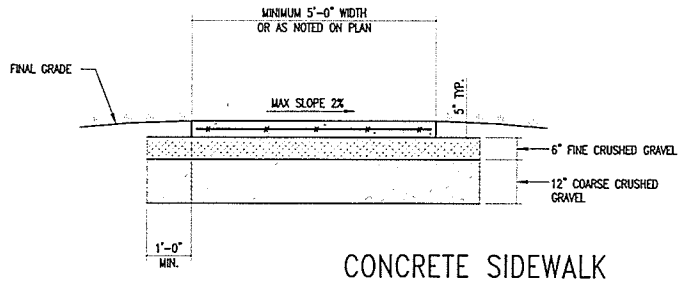
NOTES:

1. COMPACT SUITABLE NATIVE SOIL TO 90% MAXIMUM DRY DENSITY AS DETERMINED BY MODIFIED PROCTOR TEST.
2. ALL STONE MATERIALS ARE TO BE APPLIED IN 6" LIFTS (MAX.), COMPACTED TO 90% MAXIMUM DRY DENSITY AS DETERMINED BY MODIFIED PROCTOR TEST.

PERVIOUS PAVER DETAIL

SCALE: NONE

3



CONCRETE SLAB/PAVEMENT

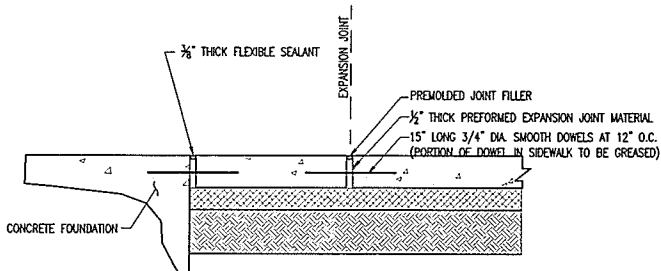
CONCRETE NOTES:

1. PLACE A TOOLED JOINT 1/8" WIDE AND AT LEAST 1/3 OF THE DEPTH, TYPICALLY AT INTERVALS MATCHING THE SIDEWALK WIDTH, OR AS NOTED ON PLANS (NOT TO EXCEED 10'-0").
2. PLACE EXPANSION JOINT AS INDICATED ON PLANS, NOT TO EXCEED 20'-0" MAX. ALL EXPANSION JOINTS SHALL BE DOWELED WITH A 1" DIAMETER SMOOTH DOWEL AT 12" O.C. DOWEL SHALL BE 15" IN LENGTH AND SHALL HAVE AN EXPANSION CAP INSTALLED AT THE END. SEE DETAIL ON THIS SHEET.
3. BROOM FINISH WITH SMOOTH TROWELED EDGES. TREAT WITH SILANE-SILOXANE OR EQUAL.
4. CAST-IN-PLACE CONCRETE TO BE 4500 psi CONCRETE, 5X-7% AIR ENTRAINMENT WITH 6x6-W4.0-W4.0 REINFORCING CENTERED IN SIDEWALK.
5. WHERE SIDEWALK IS ADJACENT TO ENTRY/EXIT DOOR PADS WITH FROST WALL FOUNDATIONS, SIDEWALK SHALL BE DOWELED TO PAD WITH 24" LONG #4 DOWELS (CENTERED) AT 1'-6" OC (PORTION OF DOWEL IN SIDEWALK TO BE GREASED).
6. WHERE SIDEWALK IS ADJACENT TO CURB, BOLLARD OR OTHER HARD FEATURE, INSTALL 1/2" EXPANSION MATERIAL (FULL DEPTH OF SIDEWALK), BETWEEN FEATURE AND SIDEWALK.
7. COMPACT ALL FINE MATERIAL TO 95% MODIFIED PROCTOR DENSITY.

CONCRETE DETAIL

SCALE: NONE

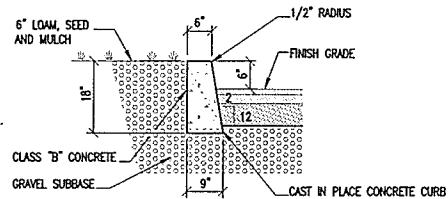
4



EXPANSION JOINT DETAIL

SCALE: NONE

5



CONCRETE CURB NOTES:

1. CONSTRUCT CURBING IN 10'-0" SECTIONS WITH 1/8" JOINT BETWEEN SECTIONS.
2. EXPANSION JOINTS AT 20'-0" O.C. MAX.
3. CONCRETE CURBS SHALL BE CONSTRUCTED IN ACCORDANCE WITH VAOT 616.06.

CONCRETE CURB DETAIL

SCALE: NONE

6

SITE/EARTHWORK SPECIFICATIONS

1. PRIOR TO THE START OF THE WORK, A PRE-CONSTRUCTION MEETING WILL BE HELD WITH THE CONTRACTOR, OWNER, PROJECT ENGINEER AND A REPRESENTATIVE FOR THE CITY OF BURLINGTON TO REVIEW PROCEDURES AND IDENTIFY RESPONSIBILITIES. THE CITY SHALL BE GIVEN NOTICE AT LEAST 24 HOURS PRIOR TO THE MEETING. UNLESS STATED OTHERWISE, ALL MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE STATE OF VERMONT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
2. CLEARING AND GRUBBING- ALL TOPSOIL AND UNSUITABLE MATERIALS SHALL BE REMOVED FROM IMPACTED AREAS.
3. COMPACTION SHALL BE PERFORMED USING VIBRATORY ROLLERS AND WATER IN LIFTS OF NO GREATER THAN SIX INCHES. COMPACTION SHALL BE PERFORMED UNTIL THE REQUIRED DENSITY IS ACHIEVED. DENSITY SHALL BE DETERMINED BY AASHTO T238 METHOD AND SHALL NOT BE LESS THAN 95 PERCENT OF THE MAXIMUM DENSITY FOR PAVED AREAS AND 90 PERCENT OF THE MAXIMUM DENSITY FOR NON PAVED AREAS DETERMINED IN ACCORDANCE WITH AASHTO T99.
4. COMPACTION TESTING SHALL BE PERFORMED FOR EVERY LAYER OF MATERIAL PLACED AND FOR EVERY 1000 SQUARE FEET OF AREA.
5. ALL REMAINING DISTURBED AREAS WITHIN THE RIGHT OF WAY SHALL BE TOPSOILED, FERTILIZED AND SEEDED IN ACCORDANCE WITH THE VERMONT STATE SPECIFICATIONS.
6. THE SEEDING OF SLOPES AND DITCHES SHALL REQUIRE THE USE OF EROSION CONTROL MATTING.

7. COST OF INITIAL INSPECTION AND TESTING SHALL BE PAID BY THE OWNER. SUBSEQUENT TESTING OF MATERIALS NOT PASSING INITIAL INSPECTION, SHALL BE PAID BY THE CONTRACTOR. 8. ALL EARTHWORK MATERIALS SHALL BE OBTAINED FROM APPROVED SOURCES. THEY SHALL CONSIST OF SATISFACTORILY GRADED, FREE DRAINING MATERIAL, REASONABLY FREE FROM LOAM, SILT, CLAY AND ORGANIC MATERIAL. EARTHWORK MATERIALS SHALL MEET THE REQUIREMENTS OF THE FOLLOWING TABLES:

A. SAND BLANKET/BEDDING:	SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
	2 INCHES	100
	1 1/2 INCHES	90 - 100
	1/2 INCH	70 - 100
	NO. 4	60 - 100
	NO. 10	0 - 20
	NO. 200	0 - 8
B. 3/4" CRUSHED STONE:	SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
	1 INCH	100
	3/4 INCHES	90 - 100
	3/8 INCHES	20 - 55
	NO. 4	0 - 10
	NO. 8	0 - 5
C. 1-1/2" CRUSHED STONE:	SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
	2 INCH	100
	1-1/2 INCH	95 - 100
	3/4 INCHES	35 - 70
	3/8 INCHES	10 - 30
	NO. 4	0 - 5
D. NO. 57 STONE:	SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
	1-1/2 INCHES	100
	1 INCH	95 - 100
	1/2 INCHES	25 - 60
	NO. 4	0 - 10
	NO. 8	0 - 5
E. GRAVEL SUB-BASE:	SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
	NO. 4	20 - 60
	NO. 10	0 - 12
	NO. 200	0 - 6
F. COARSE CRUSHED GRAVEL:	SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
	4 INCHES	95 - 100
	NO. 4	25 - 50
	NO. 100	0 - 12
	NO. 200	0 - 6
G. FINE CRUSHED GRAVEL:	SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
	2 INCHES	100
	1 1/2 INCHES	90 - 100
	NO. 4	30 - 60
	NO. 100	0 - 12
	NO. 200	0 - 6
H. GRANULAR BACKFILL:	SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
	3 INCHES	100
	NO. 4	45 - 75
	NO. 100	0 - 12
	NO. 200	0 - 6

- I. TYPE I STONE FOR STONE FILL THE LONGEST DIMENSION OF THE STONE SHALL VARY FROM 1 INCH TO 12 INCHES, AND AT LEAST 50 PERCENT OF THE VOLUME OF THE STONE IN PLACE SHALL HAVE A LEAST DIMENSION OF FOUR INCHES.

- J. TYPE II STONE FOR STONE FILL THE LONGEST DIMENSION OF THE STONE SHALL VARY FROM TWO INCHES TO 36 INCHES, AND AT LEAST 50 PERCENT OF THE VOLUME OF THE STONE IN PLACE SHALL HAVE A LEAST DIMENSION OF 12 INCHES.

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AUG 03 2016

DEPARTMENT OF
PLANNING & ZONING

Site Details and Notes

Project Title:
435/441 Shelburne Street Multi-Family

Burlington, Vermont

Designed By: PB
Checked By: -
Drawn By: WC
Scale: N.T.S.
Date: August, 2016

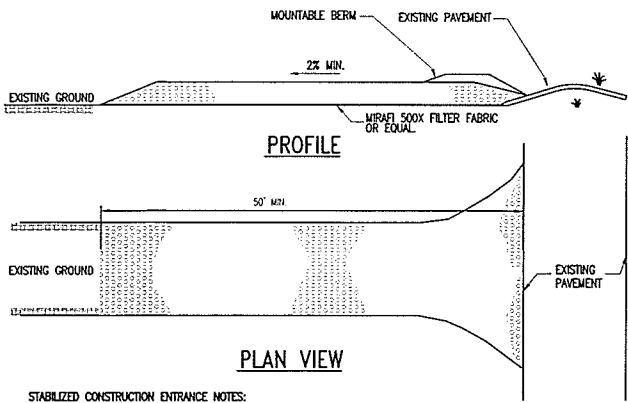
C3.3
EV#16188

Stamp

Rev. No.	Description	08/03/16
1	DRB Submittal	

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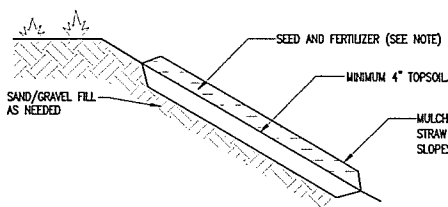
Richardson Properties, LLC
P.O. Box 276
South Hero, VT
05486



- STABILIZED CONSTRUCTION ENTRANCE NOTES:**
1. STONE SIZE: USE 1-1/2" CRUSHED STONE.
 2. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS THE ENTRANCE.
 3. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. REPAIR AND/OR CLEANOUT ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAYS MUST BE REMOVED IMMEDIATELY.
 4. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.
 5. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

CONSTRUCTION ENTRANCE DETAIL

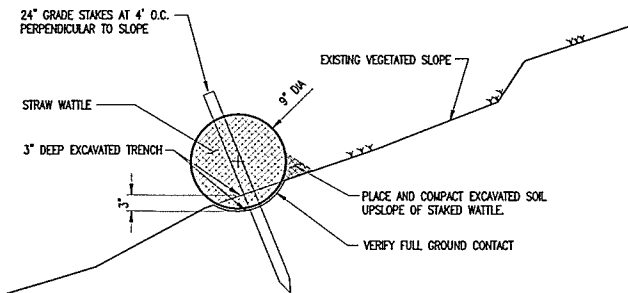
SCALE: NONE



- NOTES FOR SEEDING AND MULCHED AREAS**
1. ALL DISTURBED SURFACES SHALL BE TEMPORARILY OR PERMANENTLY SEEDING AND MULCHED WITHIN 7 DAYS OF DISTURBANCE.
 2. SEEDING AND MULCHING OF DISTURBED AREAS SHALL TAKE PLACE WITHIN 48 HOURS OF FINAL GRADING.
 3. MULCH: TYPICALLY HAY OR STRAW MAY BE UTILIZED AND SHALL BE APPLIED AT A RATE OF 90-100 LBS/1,000 SF. MULCH SHALL NOT BE PLACED ON SLOPES OF GREATER THAN 3:1. EROSION CONTROL MATTING SHALL BE USED IN ITS PLACE.
 4. SEED: SEEDING SHALL OCCUR AFTER APRIL 15 AND PRIOR TO SEPTEMBER 15TH IN ORDER TO ESTABLISH A STAND OF GRASS PRIOR TO GROUND FREEZING. SEED SHALL BE IN ACCORDANCE WITH SECTION 32 9200.
 5. COVER SEED WITH 1/2 INCH SOIL UNLESS A HYDROSEEDER IS USED.
 6. MULCH ANCHORING: SHALL BE ACCOMPLISHED BY DEGRADABLE MULCH NETTING OR MATTING. USE WHEN SLOPES ARE GREATER THAN 10%.
 7. TOPSOIL AND MULCHING NOT TO BE APPLIED IN AREAS OF TRAVEL WAYS.
 8. REFER TO LANDSCAPE PLANS FOR TOPSOIL AND PERMANENT SEEDING INFORMATION.

SEEDING AND MULCHED AREAS DETAIL

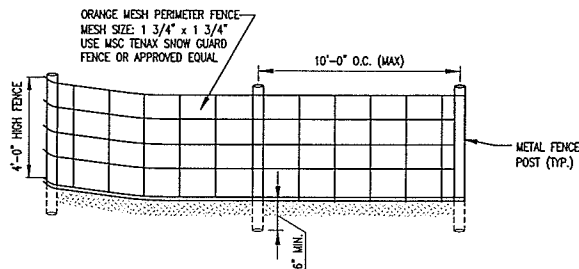
SCALE: NONE



- NOTES:**
1. STRAW WATTLE PRODUCT TO BE NORTH AMERICAN GREEN SEEDMAX-SW89 OR APPROVED EQUIVALENT.
 2. WADDLES TO BE 9" DIAMETER AND CONSIST OF AGRICULTURAL STRAW WRAPPED IN BIODEGRADABLE, ORGANIC JUTE NET.
 3. INSTALL PER MANUFACTURER'S RECOMMENDATION.

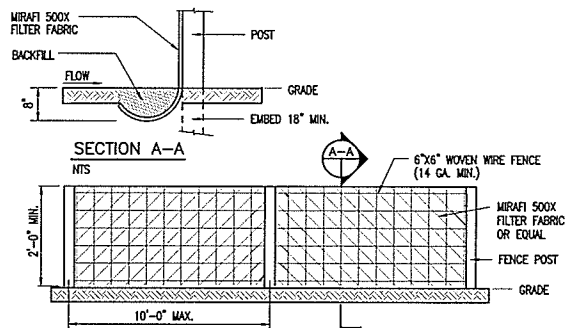
STRAW WATTLE DETAIL

SCALE: NONE



ORANGE CONSTRUCTION FENCE DETAIL

SCALE: NONE



- SILT FENCE NOTES:**
1. SILT FENCE SHALL BE PRE-FABRICATED EROSION CONTROL FENCE BY MIRAFI OR EQUAL, OR CONSTRUCTED IN PLACE AS SPECIFIED HEREIN.
 2. CONSTRUCTED IN PLACE SILT FENCE:
 - A. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
 - B. FILTER FABRIC TO BE FASTENED SECURELY TO WOVEN WIRE FENCE TIES SPACED EVERY 24" AT TOP OF MID SECTION.
 - C. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6", FOLDED AND STAPLED.
 3. INSPECTION SHALL BE FREQUENT (MINIMUM ONCE A WEEK AND AFTER EVERY RAINFALL). MAINTENANCE SHALL BE PERFORMED AS NEEDED, AND SEDIMENT REMOVED WHEN "BULGES" DEVELOP IN SILT FENCE.
 4. WOVEN WIRE FENCE REINFORCEMENT IS REQUIRED BY THE VT CONSTRUCTION GENERAL PERMIT WHEN SILT FENCE IS PLACED WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

SILT FENCE DETAIL

SCALE: NONE

EPSC NOTES

1. PRIOR TO THE START OF WORK, A PRE-CONSTRUCTION MEETING WILL BE HELD WITH THE CONTRACTOR, OWNER, PROJECT ENGINEER AND TOWN DPW TO REVIEW PROCEDURES AND IDENTIFY RESPONSIBILITIES. 4 WEEKS NOTICE SHALL BE GIVEN TO THE CITY PRIOR TO START OF CONSTRUCTION. UNLESS STATED OTHERWISE STATED, ALL MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE VTRANS SPECIFICATIONS.
2. ALL REMAINING DISTURBED AREAS SHALL BE FERTILIZED AND SEEDING IN ACCORDANCE WITH APPLICABLE STATE SPECIFICATIONS FOR EROSION CONTROL.
3. THE SEEDING OF 10% OR GREATER SLOPES SHALL REQUIRE THE USE OF EROSION CONTROL MATTING.
4. ALL EARTHWORK MATERIALS SHALL BE OBTAINED FROM APPROVED SOURCES. THEY SHALL CONSIST OF SATISFACTORILY GRADED, FREE DRAINING MATERIAL. REASONABLY FREE FROM LOAM, SILT, CLAY AND ORGANIC MATERIAL. EARTHWORK MATERIALS SHALL MEET THE REQUIREMENTS OF THE FOLLOWING TABLES:

WINTER EROSION CONTROL NOTES

- WINTER CONSTRUCTION PROCEDURES**
1. DURING WINTER CONSTRUCTION, INSPECTIONS BY THE ON-SITE PLAN COORDINATOR SHALL OCCUR DAILY WHEN AREAS ARE UN-STABLE, AND WEEKLY PRIOR TO ANY FORECASTED RAIN, THAW OR SPRING MELT WHEN TEMPORARY STABILIZATION IS IN PLACE.
 2. IN AREAS TO BE STABILIZED BY VEGETATION, ALL SEEDING MUST BE COMPLETED BY SEPTEMBER 15 TO ALLOW GROWTH TO OCCUR PRIOR TO THE GROUND FREEZING. STABILIZATION OF ALL OTHER DISTURBED AREAS SHALL BE COMPLETED BY OCTOBER 15.
 3. ENLARGED ACCESS POINTS, STABILIZED TO PROVIDE FOR SNOW STOCKPILING SHALL BE INSTALLED.
 4. LIMITS OF DISTURBANCE SHALL BE MOVED OR REPLACED TO REFLECT BOUNDARY OF WINTER WORK.
 5. SNOW WILL NOT BE PILED WITHIN 25 FEET OF PERIMETER CONTROLS (SUCH AS SILT FENCE) TO ALLOW FOR CLEARING AND MAINTENANCE. SNOW IS TO BE REMOVED FROM ALL STRUCTURAL EROSION PREVENTION AND SEDIMENTATION CONTROL MEASURES FOLLOWING EACH STRUCTURAL SNOWFALL. NO SNOW STORAGE UP-GRADE OF DISTURBANCE. NO SNOW DISPOSAL IN SEDIMENT PONDS/BASINS. IF NECESSARY, SNOW/ICE MUST BE REMOVED PRIOR TO STABILIZATION OF DISTURBED AREAS. ACCESS POINTS SHALL BE ENLARGED AND STABILIZED TO ALLOW FOR SNOW STOCKPILING.
 6. IN AREAS OF DISTURBANCE WITHIN 100 FT OF A RECEIVING WATER, SILT FENCE SHALL BE REINFORCED OR ELSE REPLACED WITH PERIMETER DIKES, SWALES OR OTHER PRACTICES RESISTANT TO THE FORCES OF SNOW LOADS.
 7. DRAINAGE STRUCTURES SHALL BE KEPT OPEN AND FREE OF SNOW AND ICE DAMS.
 8. ALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE TO BE IN PLACE BY OCTOBER 15, OR IF NOT POSSIBLE, THEN PRIOR TO GROUND FREEZE.
 9. MULCH IS TO BE APPLIED AT THE END OF EACH WORKDAY TO ALL EXPOSED AREAS THAT HAVE NOT YET REACHED FINAL GRADE AT TWICE THE RATE INDICATED IN THE SEEDING AND MULCHING DETAIL FOR THE REGULAR CONSTRUCTION SEASON. MULCH SHALL BE TRACKED IN OR STABILIZED WITH NETTING.
 10. TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT, AREAS OF DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
 - A) IF NO PRECIPITATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
 - B) DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS HOUSE FOUNDATIONS OR OPEN UTILITY TRENCHES.
 11. SNOW AND ICE SHALL BE REMOVED TO LESS THAN 1" THICKNESS PRIOR TO STABILIZATION.
 12. STONE STABILIZATION, 10 TO 20 FT WIDE IN AREAS SUCH AS THE PERIMETER OF BUILDINGS UNDER CONSTRUCTION WHERE CONSTRUCTION VEHICLE TRAFFIC IS ANTICIPATED SHALL BE INSTALLED.

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Client:

Richardson Properties, LLC
P.O. Box 276
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Sheet Title: Erosion Prevention and
Sediment Control Details and Notes

Project Title:
435/441 Shelburne Street Multi-Family
Burlington, Vermont

Designed By: PB
Checked By: -
Drawn By: WC
Scale: N.T.S.
Date: August, 2016

C3.4

EV#16188

l, Inc.
/F
/764

Richardson
N/F
QCD (Lamphere)

997/84
1099/367

Lillibridge
N/F

ACCESSIBLE WOOD RAMP

CONCRETE WALL

PEDESTRIAN UNIT PAVERS

VEHICULAR PERMEABLE
PAVERS

EXISTING TREE TO BE
REMOVED

CONCRETE WALL AT PARKING
EDGE

RAIN GARDEN
GABION RETAINING
WALL

ALLEY

(8) SPACES

♿

11' FRONT YARD SETBACK

(2) SUBCOMPACT
PARKING SPACES

LYMAN AVE

ASPHALT DRIVEWAY

ASPHALT DRIVEWAY
CONCRETE ENTRY WALK
AND STAIRS

PROPERTY LINE

CONCRETE ENTRY WALK AND STAIRS
CONCRETE RETAINING WALL

ACCESSIBLE WOOD RAMP

MAIN ENTRY HALL
FFE 203.4 +/-

WOOD ENTRY PORCH

RAISED PLANTER
CONCRETE STAIR
WITH HANDRAILS

TRASH ENCLOSURE BELOW

(10) BICYCLE PARKING
SPACES BELOW

WOOD BENCH

PEDESTRIAN UNIT
PAVERS

CONCRETE PAVEMENT

EDGE OF BUILDING
STRUCTURE ABOVE

PROPERTY LINE

5' SIDE YARD SETBACK

23' FRONT YARD SETBACK

PROPERTY LINE

STEP STONE ENTRY WALK

INFILTRATION STRUCTURE,
REFER TO CIVIL DRAWINGS

EXISTING TREE TO BE REMOVED

CONCRETE ENTRY WALK

CONCRETE SEAT WALL

STEP STONE ENTRY WALK

INFILTRATION STRUCTURE,
REFER TO CIVIL DRAWINGS

SHELBURNE AVE

SE GROUP

Landscape Architects and Planners

131 Church Street
Burlington, VT 05401

tel: 802.862.0098

fax: 802.865.2440

www.segroup.com

RICHARDSON MULTIFAMILY HOUSING

435 Shelburne Rd
Burlington, VT

RECEIVED

AUG 03 2016

DEPARTMENT OF
PLANNING & ZONING

PERMIT PLANS
NOT FOR CONSTRUCTION

0 5' 10' 20'

Graphic Scale

North

Scale: 1"=10'-0"

Date: August 3, 2016

Drawn By: TH

Checked By: AP

Issues:

No.	Description	Date

Title

SITE MATERIALS
PLAN

Sheet Number:

LA-100

Project Number: 1605001

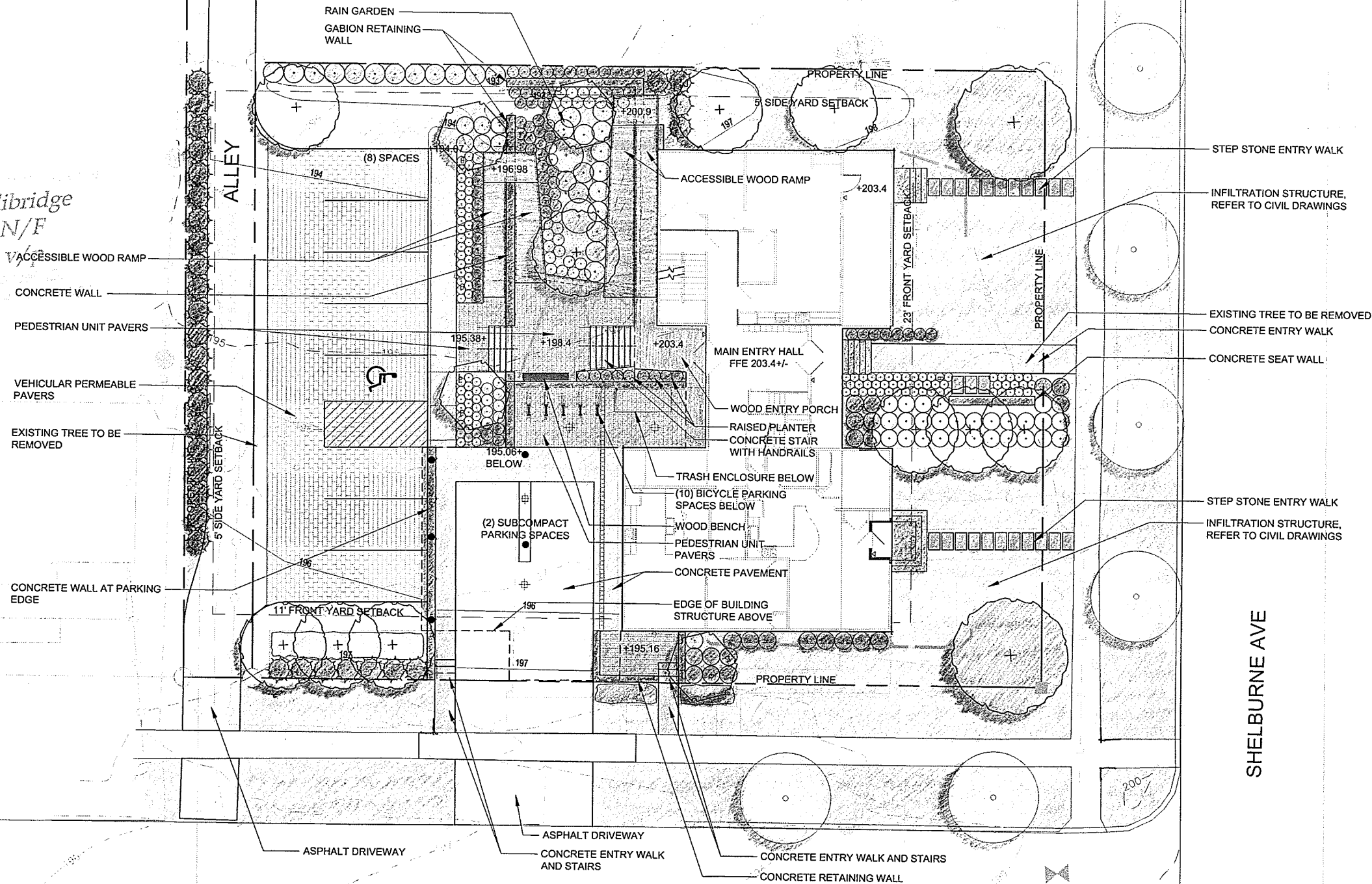
File: LA-100 Site Materials Plan.dwg

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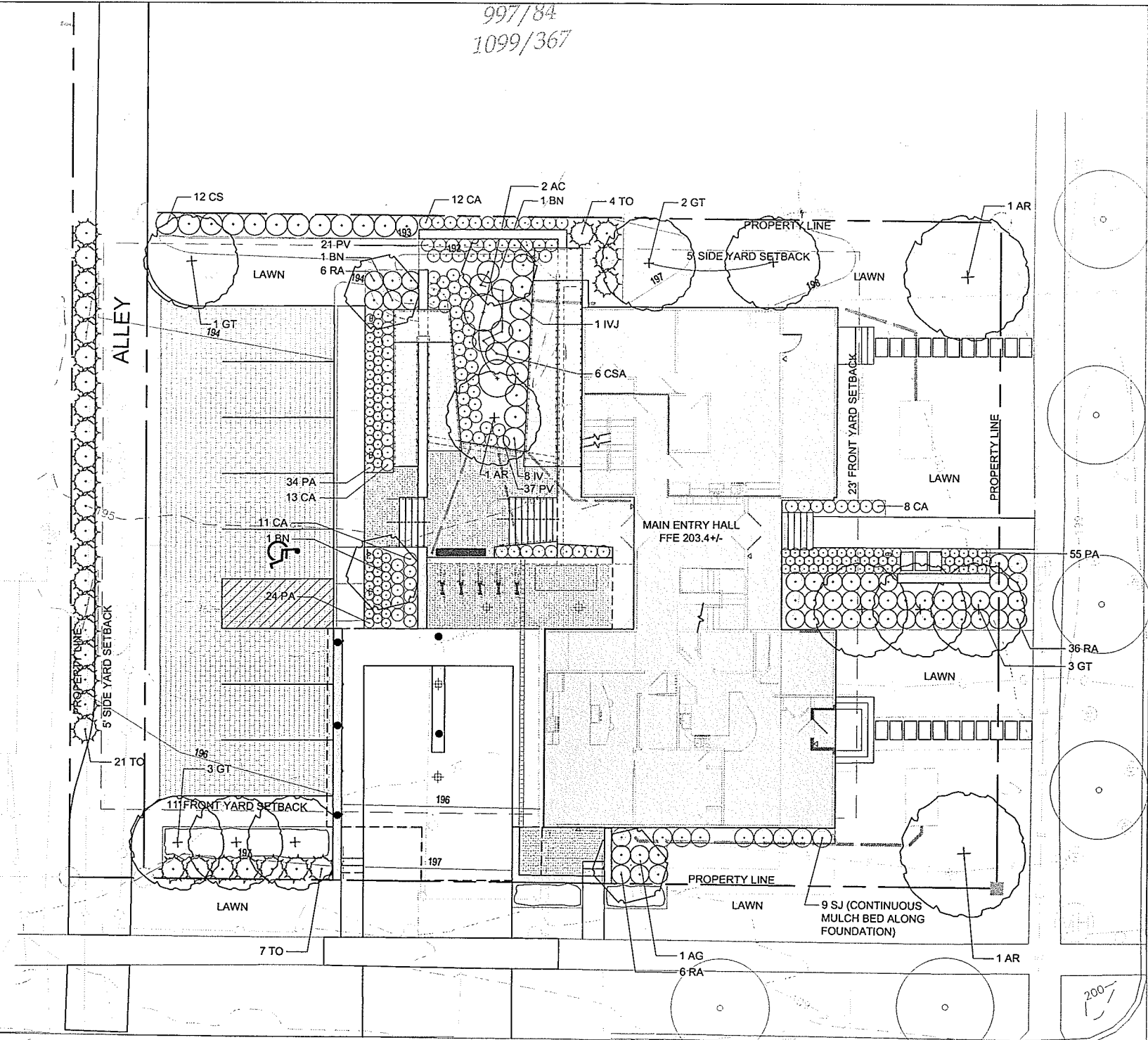
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Richardson
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997/84
1099/367

Lillibridge
N/F
v/p



SHELburne AVE

LYMAN AVE

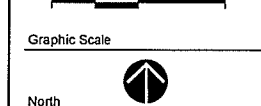
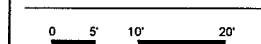
PLANT LIST:					
KEY	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	REMARKS
TREES:					
AC	Amelanchier canadensis	Shadblow Serviceberry	2	8-10' Ht.	B&B, Multi-Stem
AG	Amelanchier grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	1	2"-2.5" cal.	B&B, Single-Stem
AR	Acer rubrum 'Red Sunset'	Red Sunset Maple	3	2.5"-3" cal.	B&B
BN	Betula nigra 'Heritage'	Heritage River Birch	3	2-2.5" cal.	B&B, Single-Stem
GT	Gleditsia triacanthos 'Inermis'	Honeylocust	9	2.5"-3" cal.	B&B
TO	Thuja occidentalis	Eastern White Cedar	32	7-8' Ht.	B&B
SHRUBS:					
CSA	Comus sericea 'Arctic Fire'	Arctic Fire Dogwood	6	3'-4' Ht.	Cont. Plant 48" o.c.
CS	Comus sericea 'Bailey'	Bailey Redosier Dogwood	12	3'-4' Ht.	Cont. Plant 48" o.c.
IV	Ilex verticillata 'Red Sprite'	Winterberry	8	3'-4' Ht.	Cont. Plant 48" o.c.
IV	Ilex verticillata 'Jim Dandy'	Winterberry	1	3'-4' Ht.	Cont. Plant 48" o.c.
RA	Rhus aromatica 'Gro Low'	Gro Low Sumac	48	18"-24" Ht.	Cont.
SJ	Spiraea japonica 'Shibori'	Shibori Spiraea	9	24"-30" Ht.	Cont.
GRASSES:					
CA	Calamagrostis acutiflora 'Karl Foerster'	Karl Foerster Grass	62	1 Gal.	Cont.
PA	Pennisetum alopecuroides 'Hameln'	Hameln Fountain Grass	113	1 Gal.	Cont.
PV	Panicum virgatum	Switchgrass	58	1 Gal.	Cont.

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Title
PLANTING PLAN

Sheet Number:
LA-400

Project Number: 1605001
File: LA-400 Landscape Plan.dwg

FIXTURE SCHEDULE

- Fixture A (Bollard Light)**
 Manufacturer: Landscape Forms
 Fixture: Multiplicity Path Light- 440L4 (6 LEDs)
 Configuration: Type 4
 Optics: ---
 Lamp: 7.8watt LED - 3,000K
 Milliamps: 350mA
 Lens: Flat Lens - FGL
 Color: Anodized Cast Aluminum
 Options: ---
 Pole: Embedded
- Fixture B (Landscape Wall Light)**
 Manufacturer: Kim Lighting
 Fixture: Steplight- Path Light- EL807
 Configuration: Rectangular
 Optics: ---
 Lamp: 5.3watt LED - 3,500K
 Milliamps: 350ma
 Lens: Flat Lens - FGL
 Color: Black
 Options: Recessed Wall Light, 1'-/- Mounting Height
- Fixture C (Handrail Light)**
 Manufacturer: Cole Lighting
 Fixture: LR5 1.9 GPI-LED Symmetrical
 Optics: ---
 Wattage: 2.5watt LED - 3,000K
 Color: Stainless Steel
 Options: Underhandrail Mounted
- Fixture D (Under Building Parking Light)**
 Manufacturer: Rab
 Fixture: VANLED10N
 Optics: ---
 Wattage: 13 Watt - 4,000K
 Color: Bronze
 Options: Ceiling Mounted Fixture +/- 7' Mounting Height
- Fixture E (Building Entry Light)**
 Manufacturer: Rab
 Fixture: Entra Wall Pack - ENTRA12N
 Optics: ---
 Wattage: 12watt
 Color: Bronze
 Options: Wall Sconce +/- 7' Mounting Height

ISO-CONTOUR KEY

ISO-CONTOUR	FOOTCANDLE VALUE
	1.00
	0.50
	0.25

STATISTICAL AREA SUMMARY

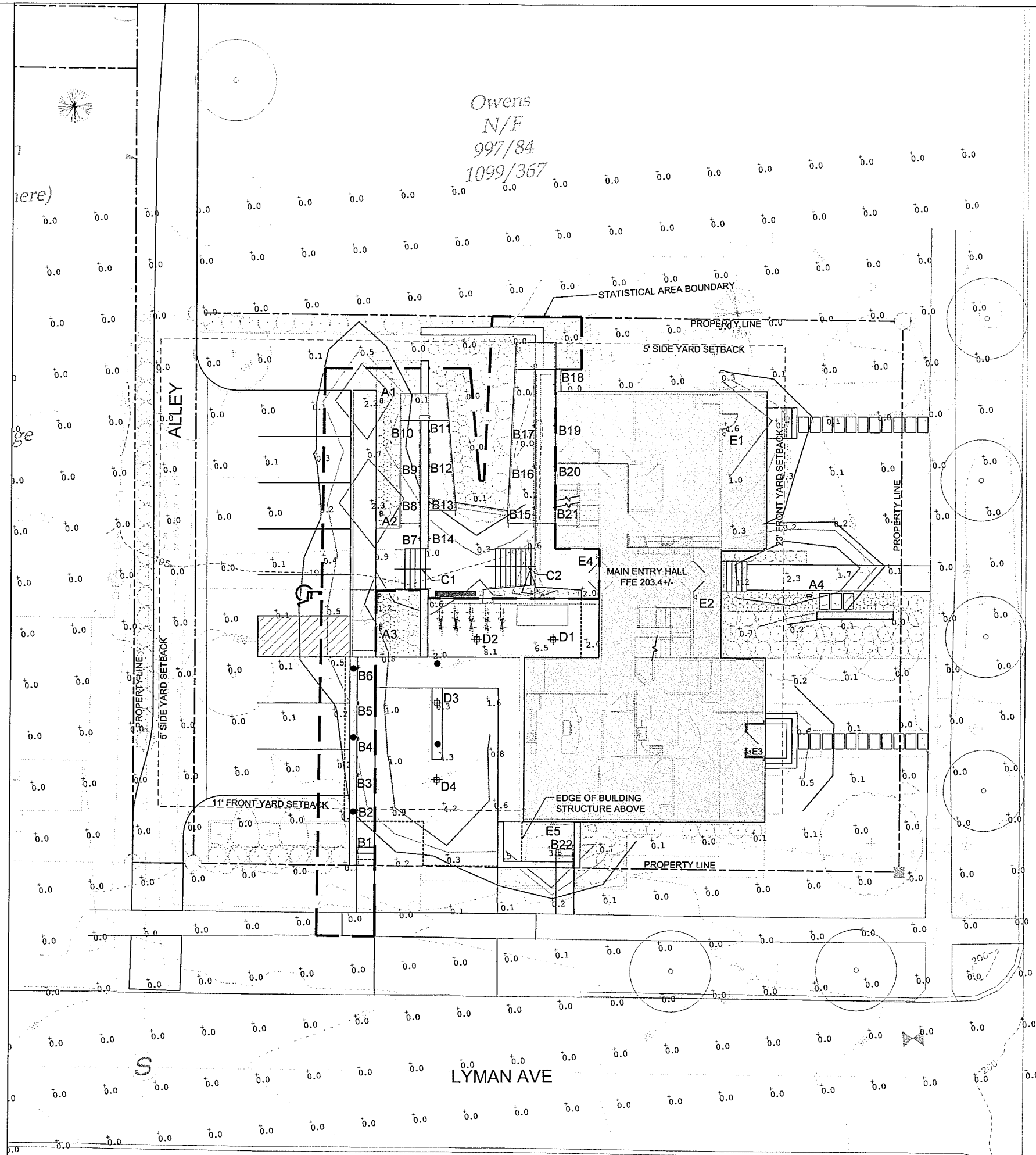
PARKING LOT AREA

Parking Area Lighting is not included in the project due to adjacent neighboring properties and overflow light from the walkway/entry plaza lighting (refer to Walkway Area Summary below).

WALKWAY AREA:

AVERAGE = 0.56 fc
 MAXIMUM = 2.3 fc
 MINIMUM = 0.0 fc
 AVG/MIN RATIO = 0.00 fc
 MAX/ MIN RATIO = 4.10 fc

Disclaimer: This analysis was calculated in accordance with published IES calculation methods and procedures with the data as entered by the user. This analysis is based on tested IES photometric data, light loss factors as defined in the LLF value. This analysis is a mathematical model of real life situations, and it can be only as accurate as the model itself. Calculated values may vary from actual measurements in certain situations. SE Group is not responsible for light output deviations due to lamp/ballast combinations or other variables.



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SITE LIGHTING PLAN

Sheet Number:

LA-600

Project Number: 1605001

File: